Railway Age

Vol. 86 January 12, 1929 No. 2

Name Registered U. S. Patent Office.

The Pennsylvania's "Manhattan Limited" near Cresson, Pa.

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Published every Saturday by the Simmons-Boardman Publishing Company, 34 North Crystal Street, East Stroudsburg, Pa., with executive offices at 30 Church Street, New York

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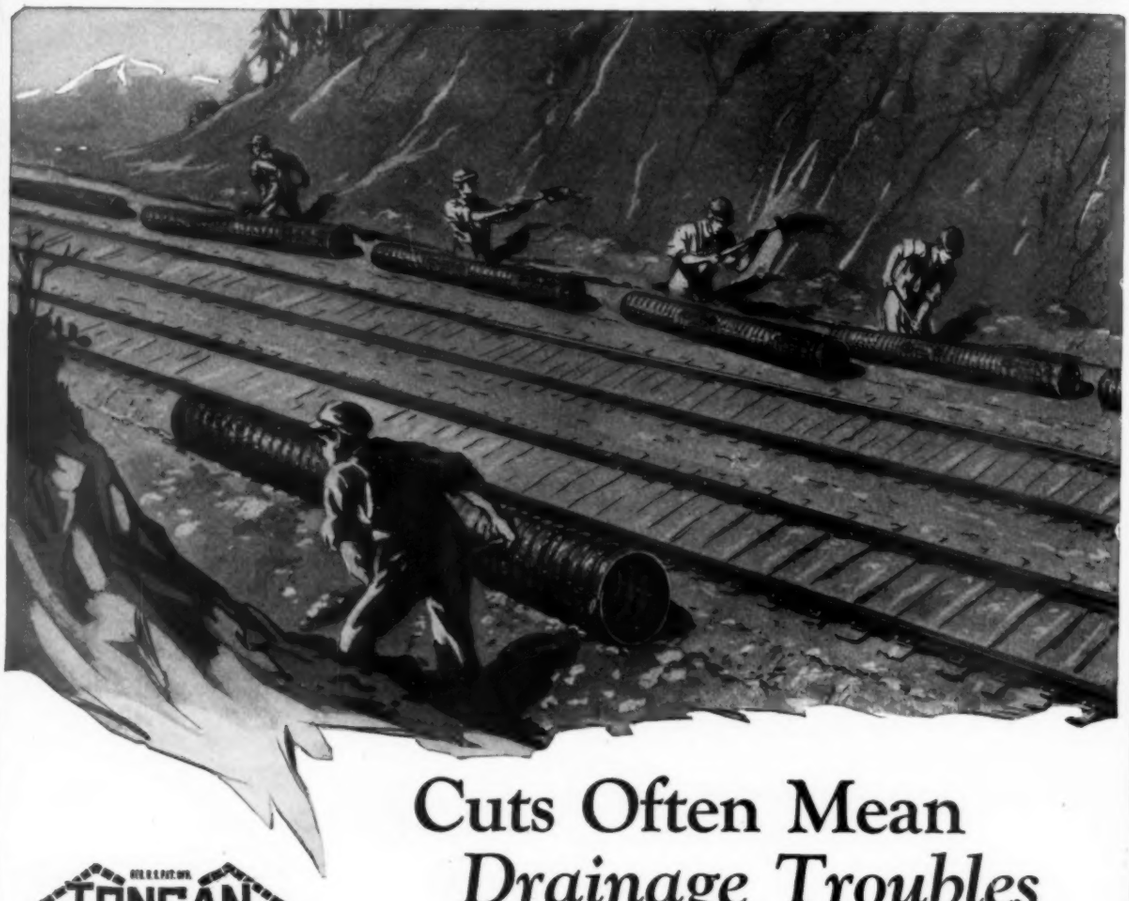
The Railway Age is a member of the Associated Business Papers (A. B. P.) and of the Audit Bureau of Circulations (A. B. C.).

Subscriptions, including 52 regular weekly issues and special daily editions published from time to time in New York, or in places other than New York, payable in advance and postage free; United States, Mexico and Canada, $6.00. Foreign countries, not including daily editions $8.00.

Subscriptions for the fourth issue each month only (published in two sections, the second of which is the Motor Transport Section) payable in advance and postage free; United States, Mexico and Canada, $1.00; foreign countries, $2.00. Single copies, 25 cents each.



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Railway Age

Vol. 86, No. 2 January 12, 1929

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Reducing Exceptions

THE majority of exceptions may be traced directly to clerical errors. Therefore, it is in the paper records rather than in the actual handling of the freight that the difficulties lie. Proof of this may be found in checking the large percentage of exceptions represented by astray waybills. With the increasing desirability of freight stations as places to work, and the improved facilities that are being provided, clerks of a higher type may be and are being employed, but this does not solve all of the problems. The entire viewpoint must be changed. The old idea was that exceptions were inevitable and of minor importance. This was and is an unfortunate and a costly attitude. On the railways that have tried it, excellent results have been secured by campaigns of education to acquaint station forces with the costliness of exceptions and the importance of reducing them. Among the lines which have successfully adopted campaigns of this sort are the Pennsylvania, the Central of Georgia and the St. Louis-San Francisco. On each of these railways a declining claim bill attests to the efficacy of the plan.

Market Statistics Show Necessity of Public Relations Work

A DEVELOPMENT of recent years is perhaps as significant as any which has affected the relationship of the railways and the public is strikingly disclosed in the Wall Street Journal's report on New York Stock Exchange trading for 1928. In that year railroad stock trading represented but 5.70 per cent of the total, industrial shares making up the remaining 94.30 per cent. In 1927 trading in railroad stocks represented almost 15 per cent of the total; in 1926, 11 per cent; in 1925, 15 per cent. Back in the days before the war, prior to and including 1914, railroad stocks bought and sold varied from 45 per cent to as high as 75 per cent of total annual trading. Of course 1928 was an abnormal year from a standpoint of market interest in industrial stocks and a comparable lack of interest in the railroad issues. Still, over a term of years, the relative volume of railroad stocks to total trading has definitely, and probably permanently, declined. This decrease in the importance of railway stocks, however, is relative only and not an absolute decrease, unless we go as far back as 1909. This is shown by the fact that the 1928 trading in railroad stocks, which represented less than 6 per cent of total trading, nevertheless involved almost twice as many shares as changed hands in 1914, when railroad trading was 45 per cent of the total. The investing public has a greater stake in railroad prosperity than it ever had, but railroads no longer are the principal recipients of surplus funds. This fact is of unquestionable importance from a standpoint of railroad public relations. The interest in railway efficiency of an investor in a manufacturing enterprise is just as real as that of an investor in railroad securities. Such interest, however, is indirect, rather than direct, and it does not come automatically. To arouse such interest and hold it is of the utmost importance and it requires intelligent expenditure of money and effort. The change in market interest shows how necessary has been the public relations work which the railroads have already undertaken, and suggests the advisability of even greater activity in this sphere.

A Gracious Acknowledgment of Meritorious Service

IN a full page advertisement which has appeared in a number of metropolitan daily papers the Simmons Company, manufacturers of beds and mattresses, has paid a gracious and significant compliment to the American railroads. This advertisement is reproduced in the News Department of this issue of the *Railway Age*. It takes the form of a "New Year's tribute to American railroads by a manufacturer who has shared in their large contributions to national prosperity". In the 63 warehouses of this company, says the advertisement, inventories have been reduced from 10 per cent to 50 per cent in the last three years in the face of increased sales and greatly improved delivery service to retailers. These retailers likewise have been able to reduce their inventories. "Throughout the nation hundreds of millions of dollars have thus been released from the necessity of financing goods in transit and storage and diverted to productive enterprise. There is no doubt we have the improvement of railroad service to thank in very large part for this powerful impulse to the growth of national prosperity." A commendation of this kind from a thriving manufacturing concern comes most opportunely in the face of agitation for enlarged waterway service subsidized by the government. Apparently there are some industries which realize, and do not hesitate to say so, that celerity and regularity of service is of the greatest importance to them. The railroads have, in the words of the Simmons Company, to be thanked for a very large part of the great increase in national prosperity in recent years. This tremendous contribution they have made in the face of uneconomic competition on highways and waterways which could not have developed without a subsidy from the taxpayers' pockets; and with earnings on railway investment which almost any other industry would consider entirely inadequate. What a great impetus to national progress would come if governmental favoritism were removed from their competitors and all agencies of transportation forced, as the railways are, to stand on their own feet!

Remote Power Switches Save 35 Minutes Per Train

THE economic advantage of remote power switches is strikingly illustrated by a recent installation involving 11 remote power switches at five single-track sidings on the heavy-traffic Tehachapi mountain district of the Southern Pacific. As stated in an article published elsewhere in this issue, the average road time of tonnage freight trains, based on two comparable days, has been reduced 35 minutes in a distance of 32.7 miles. This decrease of 15.1 per cent is particularly significant, because the line is single-track with a virtual 2.5 per cent ascending grade in the direction of heavy traffic. Moreover, the railroad follows a circuitous route in reaching the summit of the mountain, which increases the difficulty of operation. These physical handicaps tend to increase the cost of freight-train operation in this territory, and any improvement such as the installation of remote power switches that can reduce the road time of freight trains appreciably can save the road a substantial amount. With a traffic density of 28 tonnage freight-trains daily, and an average saving per train of 35 minutes, such as prevailed on the days selected for comparison, the daily train-hour saving exceeds 16 hours. A conservative figure for freight-train-hour unit costs in this territory is $25. On this basis, the saving on the days studied approximated $400. It is not intimated that the Southern Pacific is making a daily saving of this magnitude throughout the year for this result was computed on the basis of a daily freight train performance which is considerably above normal in traffic density. Any attempt to approximate an average daily saving is confronted by the difficulty of determining the effect of traffic density. Hence it can only be stated that the annual estimated saving is somewhat less than $400 a day. However, it is clear that notwithstanding the difficulty of determining the average daily saving, it is sufficiently large to yield a handsome return on the amount actually invested to provide the remote power switches on this district.

Helping the Human Element

THE desirability of eliminating the "human element" in mechanical operations, in the interests of greater uniformity and reliability of product, has been amply demonstrated in almost every department of railroading. In cases where this element cannot be eliminated, it can often be "helped." Particularly in the mechanical department, several devices designed to take the guesswork out of locomotive operation are now extensively used. In repair shops, many machine tools, once adjusted, turn out duplicate parts within the required limits of accuracy and with only very casual supervision by the machine operators. Modern pyrometer-controlled furnaces are one of the most important factors in heat treating steels to get satisfactory results, whether these steels are used in tools, springs, driving rods or what-not. In fact, it may be said that one of the reasons why more roads do not take advantage of the desirable properties of alloy steels for these purposes, is because present shop furnaces and heat-treating equipment, no doubt suitable for past needs, are frequently no longer adequate, and permit too large a degree of the "human element" to enter into the forging and heat-treating operations. Electric furnaces with automatic temperature control are now used not only for treating steel, but for heating the babbitt and tin for lining car and locomotive brasses. According to a recent news release, the Chicago, Burlington & Quincy has just installed six of these furnaces at its Aurora, Ill., brass foundry, the babbitt and tin pots with a capacity of 1,000 lb. of metal each being held within the close temperature limits required for the best work. By switching on the current an hour before the men come to work in the morning, the lining of brasses can be started without delay, and the skill of the workmen is not depended on for regulating the furnace temperatures. These are only a few examples of the ways in which the influence of the "human element" in mechanical department operations has been reduced, and much of the improvement in the future will unquestionably be along the same line.

Should Section Gangs Be Larger?

THE key to the efficiency of the section gang is the foreman. Being removed from close contact with superior officers, the results that he can obtain depend largely on the energy, leadership and initiative which he is capable of applying. What can be expected of him in the way of reports is determined by his educational attainments. To get better men than those now employed as section formen would require an appreciable increase in the wage rate paid them but this plan is subject to a serious objection. Because of the small size of the working unit, any marked increase in the foreman's pay would result in a disproportionate increase in the charge for supervision, a fact which looms large in the eyes of the managements because of the many gangs that would be affected.

To meet this objection, it has been proposed that section work be reorganized in such a way that the same number of men would be grouped in a smaller number of larger gangs. It is argued that this would make the position of section foreman attractive to men of greater ambition, initiative and ability, not only by reason of the higher wage rate that could be paid, but also because of the improved status of the position. It is contended also that this plan would remove one of the obstacles in the way of providing power tools of various kinds for section gangs and that it would permit the organization of the major items of work done by section gangs in such a way as to secure greater output.

This plan has been applied to a limited extent and has a number of advocates, but it has also met with considerable opposition. The nature of this opposition and the reasons for it, were clearly brought out at the last convention of the Roadmasters' association, in the discussion of a report on the organization of track work. The principal objections are founded on the fact that a reduction in the number of foremen means the extension of each foreman's jurisdiction over a greater length of line.

On most sections, according to the roadmasters and supervisors who discussed this report, the foreman is usually the only man in the gang who can be intrusted with the responsibility of giving the track the inspection necessary to detect unsafe conditions. Therefore, even with sections of the length now prevailing, the foreman is constantly confronted with conflicting demands on his

time and attention. How can he see all of his section without wasting the time of his gang on the motor car or absenting himself from the gang, is the question constantly before him. To lengthen the section and increase the size of the gang would serve to aggravate this problem. It also increases the difficulty of adequate supervision by the foreman whenever the work is of such a nature that it is necessary to break up the gang into smaller units, as, for example, during storms when the men must be assigned to switches, interlocking plants, etc.

These criticisms of the plan can be overcome in part by the employment of assistant foremen or of one or more leading workmen, who could be assigned to track walking or to directing the work of units of the gang as occasion requires. Thus far, this plan has been tried only under one set of conditions—a line or rather heavy traffic and a high standard of maintenance. Until it has been tested on lines of other characteristics, its practicability cannot be fully determined, but in view of the need for greater efficiency in track maintenance, it appears to be worthy of further trial.

An Outstanding Railway Achievement

THE opening for service today of the Great Northern's tunnel through the Cascade mountains and its correlated relocation of line and electrification, constitute an achievement of much importance. Because this project typifies the courage displayed by railway managements in undertaking major improvements involving bold engineering and heavy outlays of capital, it is of national interest. It affords a striking illustration of the fact that a railway is never through with its task of providing the best of service at the lowest practicable cost.

The original line was built through this section in the early nineties, crossing the mountains through Stevens pass. Because of the unusually heavy snowfall, frequently exceeding 100 ft. on the level in a winter, a tunnel 2.6 miles long was driven through the mountain in 1900, reducing the summit elevation 600 ft. and eliminating 1200 miles of circuitous line. Nine years later the portion of the line through the tunnel was electrified. Now a second tunnel 7.8 miles long has been completed to replace the first one, and it lowers the summit 500 ft. further, while, with its correlated improvements, it eliminates curvature aggregating more than 10 complete circles and shortens the line 9 miles. Nearly eight miles of snow sheds are also eliminated, and the new line avoids most of the snow troubles.

From an engineering point of view this project is of the first magnitude. The tunnel itself is the longest railway tunnel in America, exceeding in length the recently completed Moffat tunnel in Colorado by nearly 1¾ miles. It is, in fact, exceeded in length by only four railway tunnels in the world, all in the European Alps. In spite of its length and of unusual and unexpected subterranean water problems, it was completed in the remarkably short time of three years. Second in importance only to the tunnel itself was the construction of a new approach line 17½ miles long on the eastern slope on which $5,000,000 was expended for a better line and particularly to avoid snow troubles. Of equal importance was the electrification of the entire mountain district from Leavenworth, Wash., at the foot of the eastern slope, to Skykomish, at the western base, a total distance of 75 miles.

In all, this project involves an expenditure of approximately $25,000,000. The time required for passenger trains to cross the mountains will be reduced one hour by it, while freight traffic will save three hours. Of even greater importance to the traveling and shipping public is the increased dependability that will be afforded all-year operation.

Railway Financial Results

THE improvement in railway results which has been shown since the middle of 1928 was continued in November. The improvement in November was less, however, than in October. Both total earnings and net operating income were larger in October than in the corresponding month of any previous year, including October, 1926, which previously held the high records. The total earnings of $531,000,000 in November, 1928, were $27,000,000 more than in November 1927, but slightly less than in November, 1925, and about $30,000,000 less than in November, 1926. The net operating income of about $114,000,000 earned last November was about $27,000,000 more than that of November, 1927, but slightly less than that of November, 1926. The net operating income of about $1,100,000,000 earned in 11 months of last year was about $69,000,000 more than was earned in the corresponding part of 1927, but about $50,000,000 less than in the corresponding part of 1926.

The investment in the railways has, of course, increased every year, and, in consequence, the net return earned in the first 11 months of 1928, while at a higher annual rate than that of 1927, was at a lower annual rate than that of either 1925 or 1926. The return earned in the first 11 months of 1925 was at the annual rate of 4.85 per cent; in 1926, 5.23 per cent; in 1927, 4.54 per cent, and in 1928, 4.74 per cent.

There can be no doubt, in view of carloading statistics, that the results of operation in December, when they are reported, will be found to have been relatively as good as those of the other months of the last one-third of the year. There was a wide difference, from a railway standpoint, between the first two-thirds and the last one-third of 1928. Because of general business activity an increase of railway traffic and earnings was expected after the first quarter of the year, but did not come as soon as was anticipated. In view of tendencies during the latter part of the year the prospects of railway earnings seem better now than at any time since the early part of 1926.

In weighing the significance of recent railway results the conditions under which and the methods by which they were attained must be considered. Recent months have been a period of unusual general prosperity. They have been repeatedly acclaimed as the most prosperous period since the war, if not in the history of the country. In such a period, if ever, the railways should be allowed to earn a "fair return." Such unusual prosperity cannot be expected to continue indefinitely, and if prosperity should decline the railways inevitably would suffer a decline in total and net earnings. It is an outstanding fact, therefore, that during this period of unusual prosperity the railways have not earned relatively as much net return as they did in 1925 or 1926,

although they have effected large economies in operation. They have fallen and still are falling short of earning 5¾ per cent upon the tentative valuation placed upon their properties by the Interstate Commerce Commission. The prices of their stocks have largely advanced in the recent unprecedented "bull" market, but only about one-third as much, relatively, as the prices of industrial stocks.

It is gratifying that railway results and prospects are improving, but it cannot be said that the railways have been or are yet enjoying their fair and needed share of the general prosperity.

Regulation by Pressure

IN an editorial entitled "Undermining the Commission", the *Railway Age* recently (December 29, 1928, page 1286) emphasized the need of defending the Interstate Commerce Commission from outside pressure. An illustration of the extent to which some persons believe the railways should be regulated by pressure is afforded by an editorial entitled "Rally the State's Political Power," which was published in the December issue of Philadelphia Commerce and Industry.

The paper mentioned the fact that there was soon to be argued before the commission a case involving the readjustment of railway rates to the ports of Philadelphia and New York. It added: "What an opportunity for the vast political powers of Philadelphia and Pennsylvania to line up solidly behind the only ocean port which this state possesses. What a chance to perform a definite and constructive service for the commonwealth which entrusts the Republican organization with complete political power. * * * Here is a chance for real statesmanship in a critical trade crisis of this commonwealth. * * * It is time for the political power of Philadelphia and of Pennsylvania to assert itself in a great cause for the common welfare".

It was not stated how the powerful Republican organization of Pennsylvania should proceed to apply pressure to the commission to get a decision favorable to the port of Philadelphia. Those who know how things of this kind are done in Washington, however, will have no difficulty in surmising how it was intended that it should be done. No doubt it was intended that members of Congress from Pennsylvania should call upon members of the commission and more or less tactfully intimate what the consequences to them might be if Philadelphia did not win. Members of the commission have been denounced and threatened in Congress for the way they have voted in particular cases. They have been called before Congressional committees and questioned not only as to why they voted as they did in cases already decided, but also as to how they would probably vote in cases that yet remained to be decided. It is only a year since Commissioner Esch's reappointment failed of confirmation in the Senate because of the way he had voted in one case.

In all these instances the purpose of what was done, although attempts were made to camouflage it, was to apply political pressure to the commission to influence its decisions in particular cases and its general policy. And now comes Philadelphia Commerce and Industry and openly advocates the application, not merely of political pressure, but of partisan political pressure. The present national administration is, and the succeeding administration will be, Republican. Pennsylvania is a Republican state with a large Republican delegation in Congress. This delegation can hinder or help the present and succeeding national administrations in carrying out their policies. It is told that it should insist upon Pennsylvania being rewarded for being such a good and great Republican state through a decision of the Interstate Commerce Commission favorable to Philadelphia.

It must be granted that Philadelphia Commerce and Industry has advocated the application of political pressure to the commission more boldly and in a way more insulting to the commission than it usually has been advocated in the past. The difference between what it advocates, and what actually has been attempted or even done in the past, however, is a difference of degree and not of kind. It simply illustrates in an unusually striking way an increasing tendency to try to make the commission a body which will regulate the railways according to the amount of pressure applied to it, rather than one which will regulate them in accordance with evidence, arguments and sound economic principles.

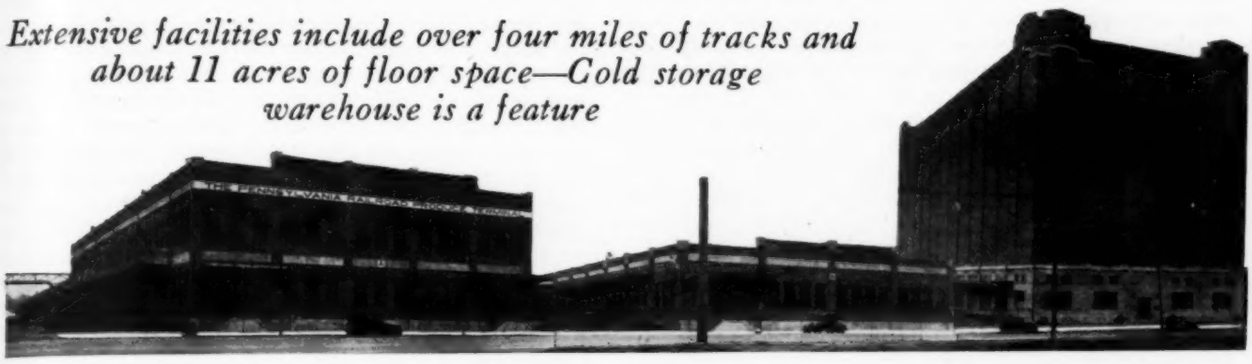
The commission cannot reasonably be expected to furnish all the resistance to these attempts to establish a policy of regulation by pressure. It is desirable that it shall be learned, judicial, fair and constructive. It is, however, actually the creature and agent of Congress and must, in the long run regulate as Congress tells it to. It can regulate fairly and in accordance with sound principles if Congress will authorize and empower it to do so, and then let it alone, but in the long run it must and will regulate in accordance with political pressure if Congress requires it to do so. Appeal can be taken from it to the courts, but only on legal grounds and with very inconclusive and unsatisfactory results. As a practical matter, the decisions of the commission virtually settle our policy of regulation, and if Congress wants to force it to follow a policy of regulation in accordance with political pressure Congress can do so. Shippers and railways will be benefited or injured far more by its decisions than by any that the courts may render, either upholding or reversing it.

Such utterances as that of Philadelphia Commerce and Industry should serve as a warning to the railways and all the business interests of the country to oppose and expose all efforts to put pressure upon the commission. Every effort of this kind that is actually or apparently successful will lead to other efforts of the same kind. The policy of pressure is equally dangerous to the railways and to those who use and pay for their service. To criticize and appeal from the commission's decisions is one thing. To resort to political coercion to influence its decisions and policies is an entirely different thing. The success of regulation will be in almost direct proportion to the extent to which men of ability and integrity are appointed to the commission and are given opportunity to regulate free from any influence excepting the influence of the evidence and the arguments presented to them.

THE ILLINOIS CENTRAL is conducting an essay contest among undergraduate students of universities and colleges along its lines, on "The Future of the Railroads". The notice calls for essays of between 600 and 1,000 words and the contest will close on February 28. A prize of $25 will be awarded the writer of the best essay in each school and the winners of these prizes will be eligible to compete for the system award of $100. The purpose of the contest is to make a test of student interest in the educational advertisements which the Illinois Central has been publishing in student publications.

Pennsylvania Builds Modern Produce Terminal at Philadelphia

Extensive facilities include over four miles of tracks and about 11 acres of floor space—Cold storage warehouse is a feature



General View of the New Produce Terminal From Oregon Avenue

IN order to meet its rapidly expanding perishable produce business in the vicinity of Philadelphia, and to provide the produce trade with convenient and up-to-date facilities, the Pennsylvania has recently completed at Philadelphia what is said to be the largest terminal of its kind in the world. This terminal, which is laid out on a 41-acre tract of land, includes about 23,200 ft. of effective service tracks, over 475,000 sq. ft. of building floor space, and all of the special equipment and facilities necessary for the expeditious and orderly unloading, display, sale, refrigeration, storage and delivery of perishable produce.

Specifically, the terminal comprises five main units; an auction sales building, known as "A", which is used exclusively for the display and auction sale of fruits and vegetables; two private sales buildings, known as "B" and "C", which are used entirely for the display and private sale of similar produce; a large eight-story cold storage warehouse with approximately 2,000,000 cu. ft. of refrigerated and ventilated storage space; and a 17-track display and team delivery yard, with wide paved driveways and eight long inspection platforms. In general, all three sales buildings, A, B and C, are more or less similar in design and are of permanent construction throughout. Both buildings A and B are 800 ft. long by 110 ft. wide, each with 88,000 sq. ft. of floor area, while building C is 110 ft. wide by 545 ft. long. The principal differences in these three buildings are in the layout of their front ends, each building having been suitably divided across the front to meet the special requirements of those using it. Thus, the street front end of Building A is a two-story structure, 220 ft. long, providing space for all of the office and auxiliary facilities necessary for the comfort and convenience of the trade and the auction company in charge of the auction sales at the terminal, while Building B, which is one-story throughout, provides accommodations across the front end for the local offices of the Pennsylvania. Building C, which is likewise only one story high, has no special office facilities, but is joined on its front end by the cold storage warehouse.

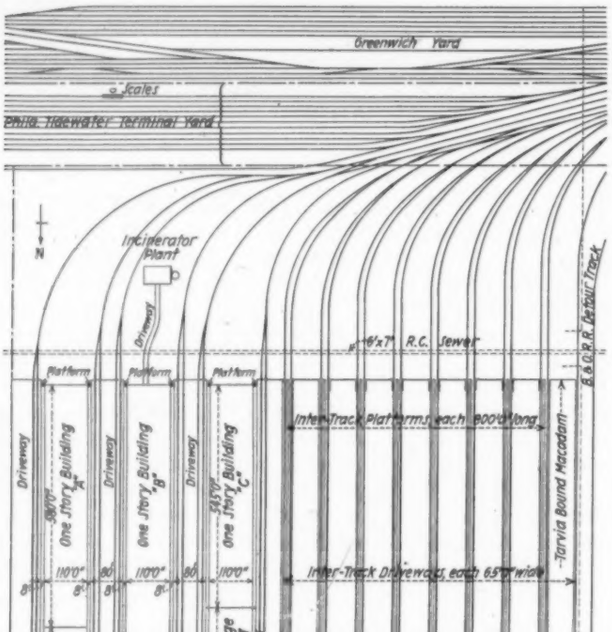
Terminal Has Favorable Location

The new produce terminal is located near the Delaware River water front in the south-eastern section of Philadelphia, facing on Oregon avenue, a main east and west thoroughfare which intersects Delaware avenue one block east of the terminal, and Broad street, about a mile west of the terminal. These two avenues are the principal north and south thoroughfares of the

Looking Through the Display and Sales Floor in Building B

city, the first mentioned extending through the heart of the city's water terminal district along the Delaware river and leading directly to the heart of the wholesale produce market at Dock street, and the latter extending the full length of the city and passing directly through the center of the business and commercial districts. So located, the new terminal is itself in an uncongested area with ample space for future expansion; it is no further from the center of the produce market than were the old outgrown facilities of the Pennsylvania at 30th and Market streets in the west side of the city; and it assures the greatest economy and convenience in trucking to all sections of the city, especially to the Delaware River bridge and the ferries to Camden, N. J.

Another important feature in connection with the location of the new terminal is that it lies immediately



Plan of the Building and Track Layout at the Terminal

north of the large Greenwich terminal yards of the Pennsylvania in south Philadelphia, which are the terminus for through trains from the South and West serving the Delaware River water front of the city. Thus produce shipments come directly to the Greenwich yards and are there available immediately for placement on the proper tracks at the produce terminal, or are at an advantageous point for quick diversion or reconsignment to other markets. This location so close to the Greenwich yards also makes possible the quick disposition of cars loaded at the cold storage warehouse and shipped under "storage in transit" agreements.

All of the units of the new terminal are arranged parallel with each other, at right angles to Oregon avenue, and are, from east to west, Building A, Building B, Building C and the cold storage warehouse, and then the team delivery yard. All three of the main buildings are separated by paved driveways, 80 ft. wide, and each of them is served throughout its length on both sides by two tracks. The entire layout at the terminal is enclosed by a high protection fence, that along Oregon avenue being of ornamental iron with wide, two-section hinged gates at each of the driveways leading to the building and delivery yard platforms.

Auction Building Is Typical

The auction sale building at the terminal is a one and two-story structure, 800 ft. long by 110 ft. wide, with the two-story portion extending back 220 ft. from the street face. This building, which is faced with a red shale brick, has a structural steel frame encased in concrete, and rests on concrete footings supported in turn on timber piles. The first 40 ft. of the building on the main floor is suitably divided into rooms of special size, designed to meet the requirements of the auction company and the trade in transacting their business. Back of this area, the entire remaining floor space is used for the trucking, display and delivery of all classes of perishable products which are to be sold at auction. In general, therefore, this main section of the building is designed as a long covered platform with a minimum of obstructions in the floor area. In effecting this, the one-story section has only one row of roof-supporting columns, this row extending longitudinally through the center of the building. Immediately under the two-story section of the building are four interior rows of columns, but even here the spacing has been made 22 ft. so as to present a minimum of interference to trucking operations.

The roof over the one-story portion of the building is of the double-pitched type with brick parapets along each side, and is constructed of pre-cast gypsum slabs covered with built-up, slag-coated roofing. The floor of this section of the building, which is at car door height, is of reinforced concrete, six inches thick, with a specially hardened wearing surface, and rests directly on a well-tamped earth fill. In order to facilitate the handling of produce into and out of the building, an eight-foot reinforced concrete platform has been provided on each side. These platforms, which extend the full length of the building, are cantilevered from the main foundation wall around the building, and are supported at intervals by heavy concrete brackets, cast integral with the foundation structure. This insures the permanent alinement of the platforms, regardless of any settlement which may take place in the main floor, and at the same time provides a safety refuge for workmen about the house tracks. The outer edge of each platform is protected against batter and chipping by a steel angle, and by an 8-in. by 8-in. oak fender bolted to the concrete.

Canopies Protect Operations

In order to afford protection for loading and unloading produce at the building during bad weather, both platforms are protected throughout by canopies, 12 ft. wide, which are anchored to the face of the building and supported by tie rods from each of the side wall columns. These canopies, which are pitched toward the building and drain through downcomers at the side wall columns, have steel frames with precast gypsum slab decks, which are water-proofed with built-up roofing, similar to that used on the roof of the building proper.

In order to avoid the necessity of spotting cars for unloading, both sides of the building are equipped with rolling steel doors, separated only by the width of the concrete-encased side wall columns. These doors, of which there are 27 on each side, are all individually hand-operated by means of chain hoist mechanisms, thereby making it possible to keep all doorways closed

in cold weather, except those where actual trucking is taking place.

Supplementing the daylighting of the interior, afforded through the skylights in the roof and through the doorways when open, each side of the one-story section of the building is equipped with a row of center-hung steel ventilating sash directly above the platform canopies, which are mechanically operated and electrically controlled through push buttons at the side wall columns. There is also a large area of steel sash in the rear end of the building. Thus, regardless of whether the side doors are open or closed, the display floor is assured adequate daylight and ventilation.

Special features provided in the building for the convenience of the trade in the orderly display and sale of the large volume of produce which is handled daily, consist of metal traffic markers provided throughout the floor area, and the installation of telephones at convenient intervals along the center row of roof columns. The metal traffic markers in the floor, which are slightly raised non-corrosive metal discs, are similar to those being used extensively for street traffic markers, and were provided in order to segregate the floor space into definite display areas and trucking-ways. This system of marking the floor permanently was adapted after painted lines had been tried and found to be effective for only a short period of time. In arranging for telephone service on the display floor as well as throughout the rest of the building, both of the commercial telephone systems of Philadelphia were installed, the phones being located in telephone booths, and in addition, a private telephone system was provided so that in the event that the city phones are in use, those on the floor can always get in touch immediately with the Pennsylvania's terminal office in Building B.

As previously mentioned, each side of the building is served by two tracks, which make it possible to spot 80 cars for unloading at one time. These tracks, which have standard tee section rails, and bumping posts at their stub ends, are paved flush, between and beyond the tracks, with heavy oak planking so as to permit trucking directly to the platforms.

In every respect, the display and sales sections of Buildings B and C are similar to that section of Building A described, except that Building B is divided laterally through the center by a brick fire wall, which is equipped with three fusible-link rolling steel fire doors. Another exception in the construction of Buildings B and C is that, without any second story portions extending over them, these buildings are relieved of the additional second floor supporting columns found toward the front end of Building A.

Two Large Auction Rooms

The two-story section of the auction sales building has two main entrances on Oregon avenue, one on each side, and is so divided as to provide suitable facilities for the trade, the auction company and the truckers employed on the display floor. On the first floor, the specially divided section provides a large entrance lobby on the east side which leads to both the display area and the second floor, a wash and toilet room, a small printing press room for the use of the auction company, and, in addition, a small vestibule on the west side of the building, and a large Savarin restaurant which is equipped for giving counter service to the trade and terminal employees at any hour of the day or night. The principal facilities on the second floor include large office space for the auction company and two large auction rooms for conducting the sales in this building. Other facilities on this floor include a restaurant where table service can be obtained, a record storage room, an auctioneer's dressing and wash room, a large locker room and suitable lavatory facilities for both men and women.

The main feature of the second floor layout is the two large auction rooms which were provided in order to afford the most favorable conditions for carrying on the auctions. One of these rooms is 100 ft. long by 64 ft. wide and has a seating capacity of 242, while the other is 100 ft. long by 43 ft. wide and has a seating capacity of 154. These rooms, which are adjacent to each other, are separated by a double wall so as to preclude the interference of one auction with the other, and entrances have been provided at both the front and rear of each room so that the auctions can be adjourned with a minimum of confusion.

The Two Auction Rooms Provide Seats for 396 Buyers

In each case the floors are of concrete and slope toward the front, where a two-level elevated rostrum is provided for the use of the auctioneer and clerks. Each seat in the rooms is provided with a steel frame, wooden top desk, with an inkwell and with a paper rack beneath, which afford convenience to the buyers attending the auctions. Both rooms are well lighted, heated and ventilated, and in order to improve their acoustic qualities, have walls and ceilings finished with asbestos absorbent plaster. In the other rooms on both the second and first floors of the building, the walls and ceilings are finisned with gypsum plaster, the exceptions to this being the use of cement plaster in the toilet rooms. Wood covered floors predominate in the various rooms on the second floor, while a linoleum covering is used generally on the first floor. The floors in the corridors, lavatories, kitchen, and in the entrance vestibules are, however, of surfaced-hardened concrete.

Building B, although only one story high, is of the same general appearance as Building A, and like that building, is suitably divided across the street front end into office space. In this building, however, the subdivided area extends to a depth of 60 ft., and is utilized entirely by the local terminal office of the Pennsylvania. The main divisions in this area include a large general office with an entrance vestibule and a large public space separated from the office by a high oak counter, and a private office for the terminal agent. These facilities

occupy the front portion of the building to a depth of 40 ft., and behind them are such auxiliary facilities as a record storage room, and locker and lavatory facilities for both the office employees and the men employed on the display floor. In general, the office facilities in this building have been finished similar to the corresponding facilities in Building A. No office or auxiliary facilities have been provided in Building C other than those which are peculiar to the eight-story cold storage warehouse, which will be described later.

Lighting and Heating

In solving the problem of lighting artificially the display and sales floors of the buildings, five longitudinal rows of overhead electric lights were provided in each building, with a total of about 1,000 lamps. These

The New Eight-Story Cold Storage Warehouse

lamps, all of which are equipped with shallow-bowl enamel reflectors, are hung on drop stems which extend from electric circuits carried along the under side of the roof trusses. This system of lighting, which makes it possible to display produce at night equally as well as during the day, is supplemented by a row of lights with reflectors suspended from the under side of each of the platform canopies, and by outside wall plugs at every fourth wall column for the connection of extension circuits for lighting the interiors of refrigerator cars while being unloaded. The driveways at the terminal are also illuminated for night operation, this being effected by high-power electric lights in flood-light mountings, located at intervals along the parapets on the sides of each building.

Heating of the buildings is by two systems, direct steam heat being supplied to the office facilities, and indirect steam heat being supplied on the display and sales floors. In this latter method of heating, each of the sales floors is equipped with unit heaters and blowers, mounted overhead on the roof trusses in line with the center row of roof supporting columns. All together there are 37 of these heaters in the three buildings. Steam for the heaters is furnished from an outside source and is carried to the terminal in an overhead pipe line. Within the buildings, all steam lines are supported by the roof trusses so as to preclude obstructions on the floors, and the steam is delivered from one building to another in an overhead pipe, which is carried over the driveways by a simple steel truss structure. The entire heating system at the terminal is thermostatically controlled so as to permit the handling of produce under the most favorable conditions throughout the year. Adequate ventilation on the display floors is afforded through the door openings and the ventilating sash provided along the sides of the buildings.

Other special features provided at the terminal to insure the produce trade the greatest protection and most favorable insurance rates, include an adequate fire protection system with a 500-gal. per min. fire pump and with fire alarms and hydrants at strategic points, and a watchman's time-clock system for checking the movements of the watchmen who are on duty both day and night.

Cold Storage Warehouse Latest Design

The new cold storage warehouse at the terminal, which has eight stories and a basement, and provides about 2,000,000 cu. ft. of refrigerated and ventilated storage space, is one of the most modern facilities of its kind in the country. This building, which is 255 ft. long by 112 ft. wide, is of reinforced concrete construction, with flat-slab type floors and roof, and rests on a foundation consisting of a 3½-ft. reinforced concrete mat supported on timber piles. Up to the second floor the exterior walls are of reinforced concrete with a rubbed finish, and above the second floor the skeleton of the building is entirely enclosed with brick and cinder block masonry walls, faced with a hard-burned red shale brick and trimmed with buff glazed terra cotta. The roof of the building is covered with slag-surfaced built-up roofing, with copper flashing throughout.

In the arrangement of the warehouse, which has capacity for storing from 1,300 to 1,500 carloads of produce at one time, the first floor is occupied by office facilities, a machinery room and a large receiving and shipping area; the basement, which extends under about three-quarters of the building, is used for dry storage and for a repair shop, while the upper seven floors of the building are used entirely for cold storage purposes. All of these floors are served by four elevators and by stairways at diagonally opposite corners of the building.

As in the case of the sales and display buildings, the warehouse is served on both sides throughout its length by reinforced concrete platforms, protected by canopies, both of which are extensions of similar facilities serving Building C, and are similar in construction to those facilities, except that the canopies over the warehouse platforms are designed to carry overhead monorail meat tracks, which may be installed at some future time. Likewise, both sides of the warehouse are served by extensions of the tracks and driveways serving Building C.

Entire Storage Area Enveloped in Cork Insulation

All of the cold storage floors of the building, namely, from the second to the eighth inclusive, are entirely enclosed in an "envelope" of pure cork insulation, this insulation lining all four exterior walls and extending under the second floor and over the roof. In addition, cork insulation is included in the floor structures of the third, seventh and eighth floors to insulate these floors one from the other, and where the floor is insulated, the cork is also carried up the interior columns to a height of six feet. Cork is also used to form the partitions between the rooms in the various floors, and entirely insulates the stairwells and the elevator and pipe shafts.

In designing the insulation for the house, the thickness of the layer of cork was determined by a study of

the temperatures to be used in the various parts of the building, and by the severity of the exposure of the exterior walls to the elements. As a result of the calculations made, the insulation ranges from five to eight inches thick.

In a further effort to prevent the transmission of temperatures from one floor to another, the various floors above the second are constructed without connection with the exterior walls and the vertical shafts, other than anchor rods at the side wall columns. In place of the usual floor-wall connection, the cork is carried down between the walls and the floors, and the small joint formed is sealed with a bituminous material to prevent the passage of air or moisture from one floor to another.

In designing the insulation and refrigeration equipment for the new plant, it was intended that the second floor, and others, to and including the sixth should be used for "cooler" storage, and that the seventh and eighth floors should be used for "freezer" storage. The actual arrangement provides, however, that any part of the second floor may be used for either cooler or freezer storage, and likewise, all three of the top floors may be used for either type of storage.

As laid out in the interior, the second floor is divided into eight rooms; two large rooms and six smaller rooms, while each floor above the second is divided into four large rectangular rooms of equal area. The clear ceiling heights on all of these floors is 12 ft., and all of the subdividing partition walls have thick insulating cores of pure cork.

The concrete floors of the building are designed for a live loading of 250 lb. per sq. ft., and have wearing surfaces of asphalt mastic. On those floors which are not insulated, the mastic wearing surface is one inch thick, applied directly over the structural floor slabs, but on the floors which are cork-insulated, a 1½-in. armor course of cement mortar, reinforced with wire mesh, was first spread over the cork, before the wearing course was applied. In this latter case, the asphalt floor covering was made 1¼-in. thick.

In finishing the interior faces of all of the exterior walls on the cold storage floors, the wall surfaces were first trued up and given a smooth surface with Portland cement mortar, and were then damp-proofed with an asphalt mixture before the cork was applied. After the cork had been installed, all of the exposed cork surfaces, including those of the insulation around the stain-wells and the elevator and pipe shafts, were finished with asphalt mastic. In the cases of the interior partitions, the cork core walls were first plastered on both faces with ¾-in. of cement plaster before the mastic course was applied. Throughout the building, the interiors of all of the cold storage rooms are painted with white ice enamel.

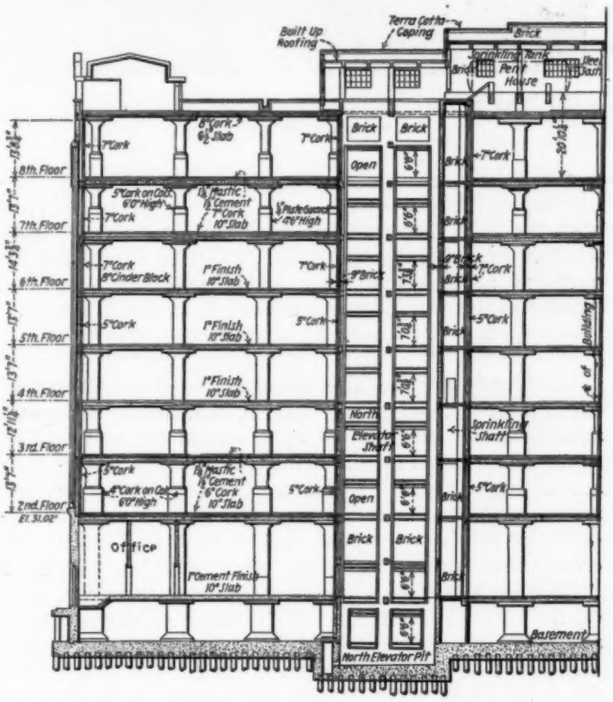
Elevators are Self-Leveling

Service to the various floors is afforded by four freight elevators, located in pairs at the third points along the longitudinal center line of the building, and provided with doors on two sides. This arrangement provides maximum accessibility to all of the storage rooms with a minimum of handling.

These elevators, each of which has a capacity of 5,000 lb. and a platform 8 ft. 7 in. by 10 ft. 4 in., sufficient in size to take three loaded hand trucks, 3 ft. by 5 ft., are of the electric type, and each of them is equipped with an automatic floor-finding and self-leveling device. This latter feature has been found to speed up their operation, and at the same time, insures a level trucking-way from the elevator platforms to the storage floors, regardless of how the elevator loads may vary during loading or unloading operations. With these elevators, and the electric and hand trucks used at the house, from 50 to 60 carloads of produce can be handled into or out of storage each day.

Refrigeration, Ventilation and Humidity Control

The first floor of the warehouse provides about 2,200 sq. ft. of office space across the street front, back of which, for 165 ft., the floor is given over entirely to the handling of produce into and out of the house. This floor, which has a ceiling height of 18 ft. and a cement-finished floor structure, is provided on both sides with rolling steel doors, and is equipped with four platform-type scales for weighing produce. The rear of the building on the first floor is used entirely for



A Longitudinal Section Through the Front Half of the Warehouse

housing all of the equipment of the refrigeration system, and has a concrete floor, depressed about four feet so as to provide adequate head room for the larger units of machinery.

The refrigeration system installed includes four ammonia compressors arranged so as to permit the greatest flexibility and economy in operation; eight horizontal shell, multi-tube type ammonia condensers; three brine coolers, so inter-connected that they may be used interchangeably for either high or low temperature brine; four centrifugal circulating pumps, and the usual arrangement of controls, traps and other miscellaneous apparatus. All of the power-operated equipment is electrically driven from either of two sources of power, one of these being intended for use, however, only in case of a failure of the main service line.

After passing through the early stages in its preparation, the brine from the coolers is forced through the house to the coils in the various rooms by one or more of the circulating pumps, the low temperature brine being circulated at minus 20 deg. F., and the high tem-

On One of the Floors in the Warehouse, Showing the Overhead Brine Pipes

perature brine at plus 10 deg. F. In addition to the cooling system, every room in the warehouse is provided with the C. A. Moore system of ventilation and humidity control, whereby the most favorable conditions are obtained automatically for maintaining freshness and quality in the produce, and especially in fresh fruits.

Special Fire Protection System

In spite of the fact that the warehouse is of fireproof construction throughout, every additional safeguard against fire is provided so as to insure the users of the house the most favorable insurance rates. The most interesting feature of this protection is the wet-pipe sprinkler system installed throughout the warehouse except the machinery room, which is charged with calcium brine instead of water so as to prevent freezing. In this system, which involves two steel pressure tanks on the roof of the house, and which is supplemented by an automatic, motor-driven centrifugal fire pump with a capacity of 1,000 gal. per min., the brine is separated from the clear water supply in the city mains by "deluge" valves, which open automatically in case of fire and allow clear water to circulate in the system. After a fire, the water can be drained off and the entire system recharged with calcium brine.

In addition to the sprinkler system, standpipes with sections of hose are located on each floor, and the entire fire protection system is supplemented by an A. D. T. supervisory system which automatically locates the fire, signals the engineer in the machinery room, rings a fire alarm on the outside of the building and calls the city fire department.

Team Yard Has 6,400 Ft. of Platforms

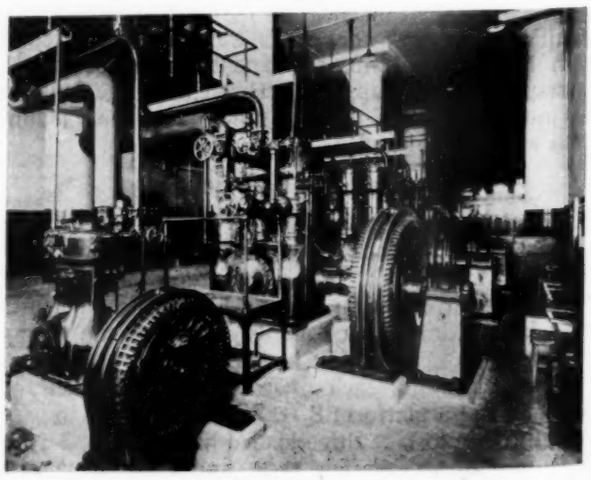
The team delivery yard at the new terminal is located immediately west of the cold storage warehouse and Building C, and includes 17 parallel tracks, all of which are stubbed at the property line along Oregon avenue. Within this yard, which has a capacity of 400 cars, the tracks, with the exception of the most westerly track, are arranged in pairs, with 16-ft. 2-in. centers, each pair of tracks being separated by a 65-ft. bituminous macadam driveway, and the two tracks of each pair being served by a long intermediate platform. The platforms provided, which are at car floor height, are for the display and inspection of produce in the yard, regardless of weather conditions, and in order to make them most effective in this respect, are covered with umbrella type sheds. All of these platforms are 800 ft. in length, and are of frame construction with a deck, four feet six inches wide. The roofs of the sheds, which are made up of simple frame trusswork, are water-proofed with four-ply, slag-surfaced built-up roofing.

In order to facilitate the inspection and sale of produce in the yard at night or on dark days, all of the platforms are provided with overhead electric lights and with extension cord sockets at every second shed column for illuminating the interior of cars. Another convenience afforded is the provision of telephones at intervals along the platforms so that those engaged in selling or buying within the yard can keep in touch with their own offices and with the activities at other parts of the terminal.

Operations at Produce Terminal

The new produce terminal at Philadelphia is an all-year facility and handles fruits and vegetables from practically all parts of the United States, Mexico and the West Indies, and from parts of Central and South America. The busiest period at the terminal extends from early fall until well through the spring months, with the peaks of this period in the late fall with the harvest of northern fruits and vegetables and the heavy movement of California juice grapes, and again in the early spring with the northern movement of southern grown fruits and vegetables. In handling this produce, every effort is made and every precaution is taken to see that it is moved in the most expeditious manner, from the time it reaches the lines of the Pennsylvania until it is trucked away by the consignees or buyers at Philadelphia. Each day the agent at the terminal receives telegraphic reports of all produce shipments enroute to Philadelphia, and his office immediately advises the consignees of the time of arrival of their consignments, and learns from them whether they want their shipments assigned to one of the sales docks or to the delivery yard, held for assignment, or reconsigned to some other market. In this way each car that arrives at the terminal can be handled promptly to its proper place.

In carrying out the operation at the terminal, practically all deliveries to the display and sales buildings are made during the night, while the daytime is oc-



A Section of the Machinery Room Showing Some of the Refrigerating Equipment

cupied by the display, sale, and delivery of the produce from the buildings. Each night, from lists of cars received in the outer terminal yard, the agent advises the yard crews of the assignment of each car, and from that time on through the night the cars are spotted at their proper places, and all of the produce received at the buildings is unloaded and arranged for display. In the early morning therefore, everything is in readiness at the terminal for the sales of the day, and beginning as early as 6 a.m., buyers are permitted on the floor to inspect the produce. In Buildings B and C, the actual sales begin about 30 minutes after the buildings are opened, and while the sales in these buildings extend throughout the day, by far the largest part of the transactions are completed within the first two or three hours of the morning.

The auction sales in Building A begin at about 7:45 a.m., following an advance warning bell sounded on the display floor, and, depending upon the volume of business, extend over a period of from one to three hours. Throughout this period there is the greatest of activity on the display floor in removing the produce for city delivery. During these same hours of the day there are extensive selling and trucking operations in the team yard, and the extent of the activity at the terminal as a whole is shown by the fact that from 600 to 900 vehicles enter the terminal for deliveries within the first few hours after the market opens each day.

After the morning rush, it is comparatively quiet about the terminal except for the movement of produce into and out of the cold storage warehouse, and such sales as continue in the private sales buildings with the trucking incident thereto. Through these quieter hours of the day the display floors are completely swept out and put in condition for receiving the produce of the following night. Sweeping the extensive floor area at the terminal, and also the driveways, is accomplished effectively by a tractor sweeper equipped with a revolving broom. The large amount of waste, broken or destroyed crates and cooperage, and the decayed vegetable matter which accumulates at the terminal is disposed of each day in an incinerator plant, which is located about 250 ft. back of Building B and forms a part of the terminal facilities.

All of the work in connection with the new produce terminal was planned and started under the direction of A. C. Shand, chief engineer of the Pennsylvania until February 1, 1927, and was carried to completion under the general direction of T. J. Skillman, now chief engineer. Direct supervision over the entire project was in the hands of E. B. Temple, chief engineer of the Eastern region, who was represented on the work by a force under the direction of C. W. Thorn, engineer of construction. The buildings at the terminal, with the exception of the cold storage warehouse, were designed by W. H. Cookman, architect. All of the new construction at the terminal, with the exception of the track work, which was done by company forces, was carried out under contract, Buildings A, B, and C, and the platforms in the team yard having been constructed by Sinclair and Grigg, of Philadelphia, while the cold storage warehouse was designed and built by United Engineers and Constructors Inc., Philadelphia.

One of the features of special interest in connection with the new terminal was the speed and facility with which the construction work was carried out. This is seen in the fact that the entire terminal facilities, with the exception of the cold storage warehouse, were completed and put in full operation on July 1, 1927, 6½ months after the contractor arrived on the ground, while the superstructure of the large cold storage warehouse, work on which was not started until May 17, 1928, was completed and put in operation on September 17, in just four months time.

While the Pennsylvania provided the entire new terminal for the use of the produce trade of Philadelphia, and is general overseer of all operations at the terminal, all of the sales in the auction building are conducted by the Pennsylvania Terminal Auction Company, and all of the transactions at the cold storage warehouse are carried out by the General Cold Storage Company to whom the cold storage facilities have been leased.

Objections to Requirement of Mechanical Firedoors

WASHINGTON, D. C.

THE Association of Railway Executives has filed with the Interstate Commerce Commission a statement of exceptions to the recent proposed report by Special Examiner J. L. Rogers recommending that the commission require the use of mechanically-operated firebox doors, with the request that they be set down for argument before the full commission. A condensation of the points on which exceptions are taken to the examiner's report follows:

Because he erroneously found from the evidence that the exposure to heat of the fire in the case of hand-operated door is substantial enough to constitute an element of danger.

Because he erroneously found that the difference in operating a hand-operated door, on the one hand, and a mechanically-operated firedoor, on the other, is substantial enough to be a consideration in respect to the issue here involved.

Because the examiner gave undue weight to the testimony which was favorable to the conclusion he ultimately reached and ignored or disregarded substantial and convincing evidence to the contrary.

Because the examiner failed to recognize the rule that the burden of proof was on the complainants and that, if that burden was not sustained, their case must fail.

It was nowhere contended by the defendants that the analysis of all the experiences with firebox failures was complete but only that the complainants had failed to make any analysis or presentation which could be accepted as representative of the relative experience of the firebox failures in the case of mechanically-operated doors, on the one hand, and hand-swung doors, on the other, which it was incumbent upon them to do if they should win their case; whereas, on the contrary, the defendants had made a much larger and more convincing presentation, showing that in the cases submitted the casualties from the mechanical door were greater in number and severer in character than with the hand swung door. They contended merely that this indicated that the complainants were not entitled to have their petition granted—not that it was proof as to what a complete and thorough analysis of experience would show. He was, consequently, in error in saying that the logical consequence of the showing was that the mechanical door ought to be discarded. The only claim of the defendants was that there had been no proof adequate to sustain a requirement that the mechanical door should be universally adopted; that this not having been proved in the case, it was a question for management to decide until a case was presented by the complainants or otherwise to the commission sufficiently convincing to require a different result.

Because the conclusion of the examiner is erroneous that deckless engines should be supplied with mechanically operated doors.

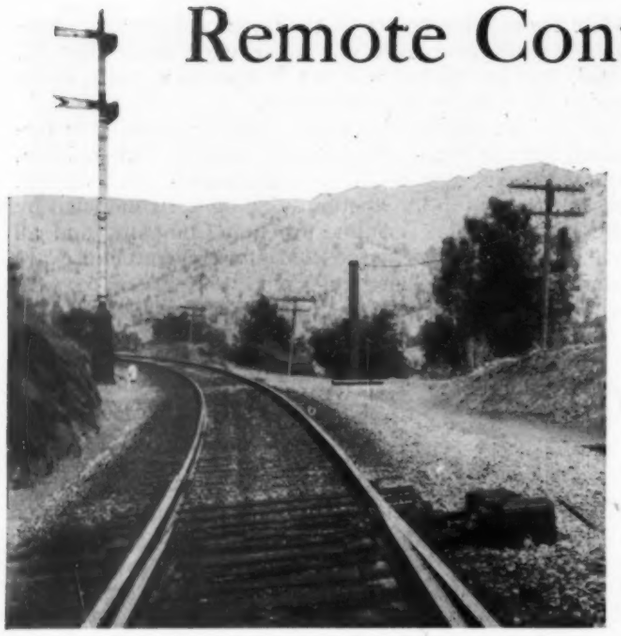
Because the conclusion of the examiner is erroneous as to his recommendation that an amendment should be made to paragraph (a) of the rules and instructions for the inspection and testing of steam locomotives.

Because, even if the major conclusions of the examiner should be sustained, the time within which the change of rule should be made effective is inadequate and also as to the classes of locomotives to be made subject to the requirement because it covers locomotives that under no circumstances should be made subject to the rule.

A brief was filed as a part of these exceptions.

Remote Control Facilities Save Time on Southern Pacific

Installation of 11 power switches on 32.7-mile mountain district decreases road time of tonnage freights 15 per cent



One of the Low-Voltage Remote-Power Switches at a Siding

BY installing 11 remote power switches at five single-track sidings and at the ends of double track on the Tehachapi Mountain district of the San Joaquin division between Bena, Cal., and Tehachapi, a distance of 32.7 miles, the Southern Pacific has decreased the average road time of tonnage freight trains between these two points 35.5 min. The average saving in time eastbound or upgrade is 37 min., and westbound or downgrade, 34 min. per train. In addition to this 15.1 per cent decrease in road time, there has been an average increase of 19 per cent in gross tons per train, which was made possible by the extension of sidings to hold 71 instead of 56 cars and has resulted in a saving of 6.65 trains a day.

The figures contained in the accompanying table, summarizing the results of freight train operation in this territory, are based on two 24-hr. periods having comparable traffic densities. The time saving is not to be inferred as being a monthly or annual average, although the two days selected for comparative purposes are thoroughly representative of operating conditions on this heavy-grade district. There were 14 freight trains eastbound and 14 westbound on each of the two days compared. It will be noted that as the result of the combined effect of the remote power switch operation and the extension of sidings, the gross ton-miles per train-hour rose from 42,600 prior to the installation of the new facilities, to 59,500, an increase of 16,900 or 39.7 per cent, in so far as eastbound trains are concerned. Similarly, there has been a decided improvement in the gross ton-mile per train-hour performance of westbound trains, which trains are inferior by class to eastbound trains. This performance rose from 27,000 gross ton-miles per train hour to 38,500, an increase of 11,500 or 42.5 per cent.

Between Bena, the present end of double track at the west end of this territory, and Tehachapi, the end of double track at the east end of this territory, this is a single-track line with a virtual 2.5 per cent ascending grade practically all of the way eastbound. As shown in the alinement map, the railroad follows a rather circuitous route in climbing from an elevation of less than 1,000 ft. at Bena to an elevation of 4,000 ft. at Tehachapi. There are several sharp horseshoe curves, and just west of the station at Walong there is a spiral loop of 10 deg. 10 min. maximum curvature, in which the railroad crosses over itself within a distance less than the length of a freight train. The maximum curvature is 10 deg. 30 min. in this territory, with a large number of curves averaging between 6 and 10 deg. and only a few below 6 deg.

Traffic Density

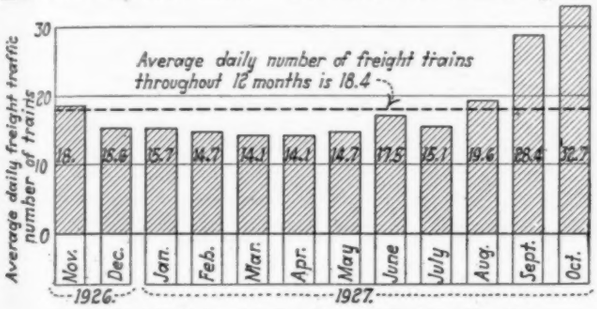
This section of the San Joaquin division is operated jointly with the Atchison, Topeka & Santa Fe, the trains of which are operated by Santa Fe crews over Southern Pacific rails from Kern Junction, Cal., to Mojave, a distance of 68 miles. The variation in traffic density by monthly averages is shown in the chart for the period from November, 1926, to and including October, 1927, the only reason for this period being shown instead of any other being that complete figures were readily available. During this 12-month period, the average number of tonnage freight trains daily was 18.4. In addition, the Southern Pacific operates 10 passenger trains and the Santa Fe 4 each day. As this is a helper engine district, there are also from 8 to 15 light engine helper movements a day. Therefore, the freight, passenger and light engine movements varied during this period from a minimum of 39 to a maximum of 70 per day.

Helper Engine Service

Since the extension of passing sidings to 71 cars capacity, an additional helper engine has been added on each eastbound or upgrade train. During 1927, it was the practice to operate tonnage freight trains up hill with Santa Fe type engines, which have a district rating of 1,800 tons. Two Consolidation helper engines, rated at 1,030 tons, were coupled into the train to help it over the grade. It is the practice this year to use three helper engines instead of two, these engines being distributed through the train to secure the most favorable slack action. A number of Southern Pacific type, three-cylinder locomotives of the 5,000 class, rated at 2,000 tons, are also used in helper service. There has been no change in the class of power used during the period for which comparative operating data have been compiled. The additional helper engine in 1928, as compared to 1927, has in no way increased the maxi-

mum speed of tonnage freight trains, its purpose being solely to handle the additional 877 tons per train, added this year. As a matter of fact, the increased tonnage per train has resulted in a saving of 2.42 trains eastbound and 4.23 trains westbound, or a total saving of 6.65 trains. It must be remembered that this is a daily saving, based on a traffic density of 28 tonnage freight trains.

In comparing freight train operation before and after the installation of the improved facilities, it is necessary to consider the fact that the end of double track at the west end of this territory was extended 2.9 miles from Sivert to Bena subsequent to September 29, 1927, which is one of the days that was chosen for comparison. It will be noted that the average road time for the 35.6 miles from Sivert to Tehachapi on



Monthly Variation in Density of Freight Traffic

September 29, 1927, was 4 hr. and 15 min. eastbound and 4 hr. 16 min. westbound. Operating officers of the San Joaquin division are of the opinion that for purposes of comparison 21 min. should be deducted from this road time to represent the time consumed in running from Sivert to Bena or vice-versa at an average speed of 8 miles per hour, which was the average speed over the entire territory in 1927. With this deduction, the average road time from Bena to Tehachapi was 3 hr. 54 min. eastbound and 3 hr. 55 min. westbound. This correction in road time consumed in traveling the 2.9 miles from Sivert to Bena is con-

Signaling at a Hand Throw Switch—Note "Take Siding" Indicator Mounted on Mast

servative, because this section of line is nearly level and without adverse curvature. It is more than likely that trains covered this section at a speed greater than 8 m.p.h. in 1927, and hence the 21 min. deduction is on the safe side.

It is significant that with the aid of helper service, trains are operated eastbound or up hill an average of four minutes faster than they are down hill. This is due, in part, to the fact that eastbound trains are superior by class to westbound trains, but more particularly because trains are required to stop at several points descending the mountain, in order to inspect equipment and cool the wheels.

In the summary of freight train operation, shown in the table, no attempt has been made to use the average reduction in train time of 35.5 min. as a basis for com-

Tonnage Freight Trains—September 29, 1927

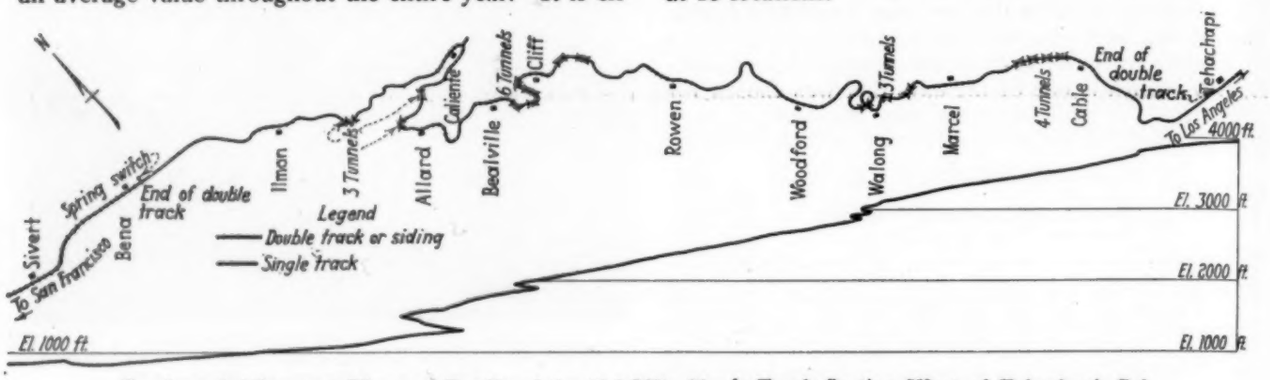
	Eastbound					Westbound			
Train	Leave Sivert	Arrive Tehachapi	Elapsed Time	Gross Tons	Train	Leave Tehachapi	Arrive Sivert	Elapsed Time	Gross Tons
1-252	4:11 a.m.	8:20 a.m.	4:09	4638	251	4:53 a.m.	7:11 a.m.	2:18	3159
2-252	5:17 a.m.	8:57 a.m.	3:40	4704	1-255	5:30 a.m.	8:31 a.m.	3:01	3634
3-252	6:13 a.m.	11:12 a.m.	4:59	5304	X-3837	5:50 a.m.	9:05 a.m.	3:15	3500
7-262	7:16 a.m.	11:59 a.m.	4:43	4355	2-255	6:03 a.m.	10:11 a.m.	4:08	3110
2-262	8:11 a.m.	12:50 p.m.	4:39	5078	X-3020	7:43 a.m.	12:33 p.m.	4:50	3044
3-262	9:37 a.m.	2:10 p.m.	4:33	5242	X-1675	8:25 a.m.	1:00 p.m.	4:35	3018
4-262	10:41 a.m.	3:25 p.m.	4:44	5262	3-255	9:47 a.m.	3:38 p.m.	5:51	3120
5-262	12:35 p.m.	4:16 p.m.	3:41	5216	X-1686	9:00 a.m.	2:22 p.m.	5:22	3050
1-264	1:20 p.m.	4:45 p.m.	3:25	5212	X-1690	11:20 a.m.	4:01 p.m.	4:41	3352
2-264	2:25 p.m.	6:10 p.m.	3:45	4892	X-960	12:10 p.m.	4:16 p.m.	4:06	3180
3-264	2:46 p.m.	8:20 p.m.	5:34	5284	1-263	2:15 p.m.	6:30 p.m.	4:15	3763
4-264	4:25 p.m.	8:40 p.m.	4:15	5188	X-956	5:25 p.m.	10:10 p.m.	4:45	3010
5-264	5:14 p.m.	9:40 p.m.	4:26	5391	X-1692	6:10 p.m.	10:28 p.m.	4:18	3020
6-264	6:54 p.m.	9:55 p.m.	3:01	5220	X-3746	10:00 p.m.	2:18 a.m.	4:18	3149
Average			4:15	5,070				4:16	3,222

Tonnage Freight Trains—September 23, 1928

	Eastbound					Westbound			
Train	Leave Bena	Arrive Tehachapi	Elapsed Time	Gross Tons	Train	Leave Tehachapi	Arrive Bena	Elapsed Time	Gross Tons
EX 3766	1:23 p.m.	3:41 p.m.	2:18	4530	251	2:18 a.m.	5:28 a.m.	3:10	6466
252	3:56 a.m.	7:30 a.m.	3:34	5562	X 1680	3:08 a.m.	6:25 a.m.	3:17	4056
1-262	7:25 a.m.	10:21 a.m.	2:56	6754	X 1676	4:05 a.m.	7:20 a.m.	3:15	3848
2-262	8:01 a.m.	11:25 a.m.	3:24	6390	X 971	6:53 a.m.	10:14 a.m.	3:21	4808
3-262	9:20 a.m.	12:42 p.m.	3:22	5796	321	10:45 a.m.	6:20 p.m.	7:35	2035
4-262	10:31 a.m.	1:55 p.m.	3:24	6472	255	10:20 a.m.	1:42 p.m.	3:22	3865
5-262	11:31 a.m.	2:55 p.m.	3:24	6820	X 956	10:40 a.m.	2:03 p.m.	3:23	3998
6-262	12:18 p.m.	3:50 p.m.	3:32	4627	X 1675	11:25 a.m.	3:01 p.m.	3:36	3716
1-264	1:20 p.m.	4:44 p.m.	3:24	6816	X 3023	12:10 p.m.	3:33 p.m.	3:23	3782
2-264	2:40 p.m.	6:06 p.m.	3:26	6726	263	12:42 p.m.	4:25 p.m.	3:43	3130
3-264	3:58 p.m.	7:40 p.m.	3:42	4811	X 1673	1:15 p.m.	5:00 p.m.	3:45	4020
4-264	5:00 p.m.	8:10 p.m.	3:10	6792	261	4:55 p.m.	7:56 p.m.	3:01	3237
5-264	6:53 p.m.	10:13 p.m.	3:20	5322	X 968	5:40 p.m.	9:13 p.m.	3:33	4080
258	9:31 p.m.	12:35 p.m.	3:04	3838	X 1672	7:02 p.m.	10:15 p.m.	3:13	3768
					X 1688	9:10 p.m.	12:01 a.m.	2:51	3960
Average			3:17	5,947				3:21	3,918

puting the "out-of-pocket" saving in dollars and cents, either for the two days compared or for a 12-month period. It must be remembered that on the two days selected, the traffic density was 28 tonnage freight trains and that this figure is considerably greater than the 12-month average, shown in the chart of traffic variation. It would not be reasonable to suppose that a time saving in train operation computed for a day in which 28 tonnage freights are operated can be used as an average value throughout the entire year. It is extremely difficult, therefore, to fix any definite figures as to the total annual savings in time or money, brought about by the installation of remote power switches and by the extension of passing sidings.

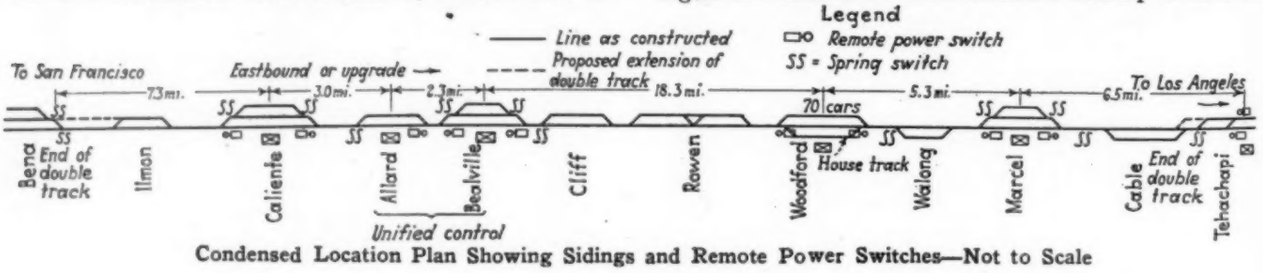
Train orders have not been eliminated in this territory since the installation of remote control facilities, orders still being issued to trains instructing them to meet certain other trains within this territory. However, their content and delivery have been greatly simplified, because an order may not designate where to head in to meet an opposing train, this being arranged later by the dispatcher, working in conjunction with the operators at the various sidings. If the engineman finds a head-in signal, he knows that he is expected to enter the siding. That is, the meeting point is frequently left entirely to signal indication as it would be in an installation of centralized traffic control. However, the present remote-control facilities are not quite as flexible as in a centralized control scheme, because the dispatcher's control of traffic is indirect rather than direct. The signaling at sidings supersedes time-table superiority of trains.



Condensed Alinement Plan and Profile of the 32.7-Mile Single-Track Section West of Tehachapi, Cal.

Union Style-B lower-quadrant semaphore signals with separate home and distant arms are used as station signals at the ends of the passing sidings. These signals are semi-automatic in control, depending upon the position of the switch and the direction of traffic. Dwarf color-light signals showing green and red are employed as route signals in conjunction with the semaphore entrance signals. In the majority of cases these routes signals are dwarf units mounted immediately ahead of or along side the signal mechanism case. At a few locations, take-siding indicators have been mounted on semaphore signals masts so as to be directly in line with the engineman's vision. These color-light indicators are marked "M" and "S", the former letter meaning "hold main line" and the latter letter "head in on siding." These color-light indicators are employed only in conjunction with hand-operated switches.

The signals in this territory are connected up according to the Southern Pacific standard overlap scheme of



Condensed Location Plan Showing Sidings and Remote Power Switches—Not to Scale

Signaling Facilities

The 11 power switches, located as shown on the condensed track plan, are Union Model-M 20-volt machines operating from full-normal to full-reverse position in 17 sec. Each remotely-controlled power switch is operated from a 12-cell Exide KXHS-7 75-a.h. battery located in a concrete battery house. This storage battery is at all locations, except Woodford, float charged by means of 42 Edison 500-a.h. primary batteries connected in series. These primary cells as a group are connected in parallel with the storage battery. In the vicinity of Woodford, there is a commercial power line and hence the 75-a.h. storage battery at that location is charged by means of a Balkite rectifier using the a-c. floating system.

As shown on the condensed track plan, spring switches of Ramapo-Ajax manufacture with oil butters made by the Union Switch & Signal Company are used both in the main line and at turnouts on passing tracks at 13 locations.

single-track signaling. The operator at a siding telegraph station has no control of the entrance signals except to put them at stop and in so far as the position of the switch determines the indication of the signal. When, however, the lever in the desk circuit controller governing the switch is in the central position, all of the signaling at that particular location is at stop.

A concrete telephone booth is located at the end of each siding, the telephone being mounted on a special bracket which is accessible when a small door is opened in the front of the telephone booth. A trainman desiring to get in communication with the operator does not have to open the large door leading to the inside of

the booth, but merely the small door that gives him access to the telephone. Inside the telephone booth three shelves are provided for the storage battery. These booths are cylindrical in shape so that they may be easily rolled into place.

The remote power switches are controlled with Union desk lever controllers mounted on a table or shelf in the station. One control lever is provided for each switch.

Summary of Freight Train Operation Bena to Tehachapi

	Eastbound (Upgrade)	Westbound	Average
September 23, 1928			
Number of trains	14	14	14
Average gross tons per train	5,947	3,918	4,932.5
Total tonnage handled	83,256	58,769	*142,025
Average road time per train (32.7 miles)	3 hr. 17 min.	3 hr. 21 min.	3 hr. 19 min.
Average gross ton-miles per train-hour	59,500	38,500	49,000
September 29, 1927			
Number of trains	14	14	14
Average gross tons per train	5,070	3,222	2,073
Total tonnage handled	70,986	45,109	*116,095
Average road time per train (35.6 miles)	4 hr. 15 min.	4 hr. 16 min.	4 hr. 15.5 min.
Average road time per train compensated for 2.9 miles greater distance at 8 m.p.h.	3 hr. 54 min.	3 hr. 55 min.	3 hr. 54.5 min.
Average gross ton-miles per train-hour	42,600	27,000	34,800
Comparative Results			
Increase in gross tons per train	877	696	786.5
Per cent increase in gross tons per train	17.3%	21.6%	19.0%
Saving in trains as result of increased tonnage per train	2.42	4.23	†6.65
Decrease in road time	37 min.	34 min.	35.5 min.
Per cent decrease in road time	15.8%	14.5%	15.1%
Increase in gross ton-miles per train-hour	16,900	11,500	14,200
Per cent increase in gross ton-miles per train-hour	39.7%	42.5%	40.4%

* Total tonnage handled during 24 hr.

† A total of 6.65 trains were saved by increased tonnage.

When this control lever is in the central position, all of the signals at the switch are at stop. When in either the right or left extreme position, the switch is operated to the reverse or normal position, as the case may be, the signal clearing automatically. Only two wires are necessary between the control lever and the polarized switch control relay at the end of the siding. An illuminated track diagram is mounted near the desk lever controllers in each of the telegraph offices.

Future Plans

Within a year the ends of double track at both ends of the single-track territory from Bena to Tehachapi will be extended to the next siding, as indicated by the dashed lines on the condensed track plan. The end of double track at the west end will then be located at Ilmon. Similarly the end of double track at the east end will be at Cable. This will reduce the single-track mileage eight miles. It is also planned ultimately to control all of the remote power switches in this territory from a central point, thus eliminating the use of written train orders. With train operation by signal indication, a further reduction in operating time is expected.

TERMS UNDER WHICH RAILROADS MAY USE the St. Louis municipal bridge, are named in a new bill which was received favorably by a special committee of the St. Louis Board of Aldermen on December 19 and was given a second reading before the entire board on December 21. It supplants a former measure, which stipulated that the bridge should be free of tolls, and provides for the following charges: $2 for each locomotive, $1.50 for each passenger coach, $1 for a loaded freight car and 50 cents for each empty car crossing the bridge. Later, if the revenue warrants, these rates are subject to revision downward as the city does not intend to operate the bridge for profit.

I. C. C. Opposes Exemption of Short Lines from Recapture

WASHINGTON, D. C.

THE Interstate Commerce Commission is not in favor of the provisions of pending bills in Congress to exempt short line railroads from the recapture provisions of section 15a on the basis of their mileage or average gross earnings per mile, according to a statement presented by Commissioner Frank B. McManamy, chairman of the commission's legislative committee, at a hearing before a subcommittee of the House committee on interstate and foreign commerce on January 8 on the bill passed by the Senate, S. 656, and a somewhat similar bill introduced by Representative Newton, of Minnesota.

Mr. McManamy read a statement on behalf of the commission saying it had on three previous occasions expressed its views with respect to similar views, at the request of the committees having them in charge, and still holds the views previously expressed. "In each of these reports, for reasons stated," he said, "we expressed the view that different treatment of the carriers in the matter of recapture of excess earnings under section 15a based upon mileage or gross revenue or on both, would result in unfair discrimination among carriers and was fundamentally unsound. We further stated, that in our opinion, so long as the rate-making and recapture provisions of section 15a remain in the Act, all carriers should be dealt with on the same basis and that the act as originally passed is in this respect equitable.

"We see no reason why a railroad 100 miles or less in length, which has gross revenues of say $14,000 per mile, should be exempt, while one a few miles longer with exactly the same gross should not. Under such conditions it is more than probable that the road which is exempt has the greater net revenue. We believe that the inequalities which will result from this bill will be greater than under the present law."

Director C. D. Mahaffie, of the commission's Bureau of Finance, expressed the opinion that consideration ought to be given to the suggestion that the average net railway operating income for a period of years be taken as the basis for recapture, instead of the results of each year.

Alfred P. Thom, general counsel of the Association of Railway Executives, told the committee that he was an advocate of an amendment to the pending bill to extend the standard to an average of five years and that he was in agreement with the short lines on that but that he had been informed that such an amendment would seriously embarrass the passage of the bill in the Senate and therefore felt that he should not insist on "riding in on some one else's bill." "When the proper time comes," he said, "we feel that we can sustain an argument that this whole business of recapture of excess earnings should be worked out in some other way, as by consolidation."

C. M. Oddie, Pacific Coast regional vice-president of the American Short Line Railroad Association, said that the short lines had recognized the menace in the recapture situation as far back as 1923 and that the bills introduced had been the outcome of discussions at annual meetings of the association for several years but that some changes had been made before the bill was passed by the Senate. The short lines have no desire to make the bill unduly exclusive or to broaden it to include

those not entitled to relief, but desire a bill in the form that can be passed which will give relief to the "peak-earning roads."

Bird M. Robinson, president of the association, said the association desires that the bill give exact justice without including any road not entitled to it or excluding a meritorious one. "I think," he said, "that the recapture ought to be based on an average of three to five years for all roads alike. It is very unfair to take part of the earnings for an occasional peak year but we have been informed that we cannot get through the Senate a bill extending the period. We do not agree with the commission in its conclusion that this bill is unjust. We believe we have better information than the commission has as to how it will affect the various roads and we are prepared to present it."

George H. Parker, who was comptroller of the U. S. Railroad Administration, appearing on behalf of the Wildwood & Delaware Bay Short Line, the Northampton & Bath, and the Genesee & Wyoming, said the whole idea of the recapture provisions of the law is un-American and fallacious, especially when applied to the smaller railroads, and he urged the exemption of the roads classified by the Interstate Commerce Commission as Class II and Class III, saying the commission itself for twenty years has relieved the railroads other than Class I, from many requirements which are imposed on the large roads.

Claims Theory is Fallacious

Mr. Parker said that the theory of the recapture law, that it was necessary to keep the stronger roads from earning too much on rates based on the condition of the weaker or average roads, was fallacious because rates were not as a matter of fact based on considerations pertaining to the smaller roads but on what the traffic would bear, and that although the commission aimed at 5¾ per cent return it has actually fixed a rate level on about a 5 per cent basis. He said he was not criticising that because he thought the traffic in general could not stand higher rates and that possibly even lower rates might result in more net.

"The sooner we get around to basing rates on considerations which usually affect commercial transactions the better off we will be," he said. "We have been trying to repeal the law of supply and demand."

"What the commission actually did in 1920 and 1922," he said, "was to determine as nearly as possible from a consideration of the various matters studied by it, what rates railroad traffic would bear. A fair reading of the commission's decisions in those cases will show that to the extent the commission used the equation of a property value multiplied by a given rate of return, to produce a net railway operating income, and that converted to a gross revenue, thereby to establish the level of rates and fares, it was merely as a general guide and not a specific measure. In considering whether the value of the roads is actually employed as a factor in determining the rate level, we must look to the results that flow from the administrative act, rather than the act itself, including the mathematical processes that were comprehended therein.

"The recapture provisions of Section 15a would be objectionable even if the commission had in fact found it practicable meticulously to perform the mandate of the statute in fixing the rate level. The objections are all the greater that the rate level has not been so established. Subordinate to the foregoing, the objectionable features of the recapture provisions are: (a) It is un-American in principle. (b) It is economically unsound. (c) It will fail to serve the purposes for which it was apparently devised. (d) It will never serve any useful purpose. (e) It is expensive and troublesome.

"A scheme of recapture of excess income is not necessarily an essential element of the present scheme of rate-making. The scheme of recapture embodied in Section 15a did not rest upon a fair consensus of informed opinion when it was enacted. The idea of recapture of excess income in any form rests upon a fallacious premise. The recapture as at present devised will not reach the really prosperous roads, generally speaking, to the same degree that it will reach the less prosperous.

"Even if, in spite of the foregoing, Congress having embodied the recapture scheme in existing law, should not be reluctant to repeal it, recapture should not be made upon any road until it has individually enjoyed the fair return fixed by the commission, and in any event the small roads, whose situation was not carefully, considered in the establishment of the rate level, and because of other special circumstances affecting them, should be relieved from its provisions."

Mr. Parker expressed the opinion that before the commission gets around to any actual recapture, if its O'Fallon order should be sustained, "Congress may see the wisdom of striking out the recapture provisions altogether."

In support of his suggestion that the Class II and III roads be exempted, he said the same principle was included in the income tax law, as those with small incomes are not required to file returns, and that the mileage of a road has no more to do with the question than a man's height has to do with his income. "If it be said that a classification of roads for recapture purposes is discriminatory," he said, "we would at least be adopting the same principle of discrimination that the Interstate Commerce Commission has for twenty years."

Referring to the Wildwood & Delaware Bay road, he said it was built with the proceeds of an issue of $480,000 of bonds approved by the New Jersey State Commission but that the commission had valued it at $240,000, and on the basis used in the O'Fallon recapture case it would be subject to the recapture of some $100,000 as "excess earnings" although the company has a profit and loss debit of $40,000 to $50,000.

As to suggestions that the recapture be based on an average of three or five years, instead of on the earnings of each year, he said that would reduce the recapture to such a negligible amount that there would be no reason for having it at all.

A. R. Yarborough, representing the Campbell's Creek, Kelley Creek & Northwestern and Kanawha Central railways, also testified, urging legislation that would exempt those roads from recapture.

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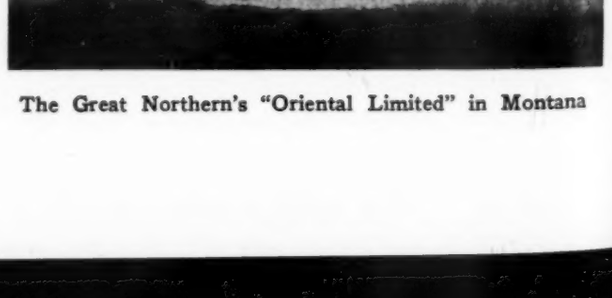
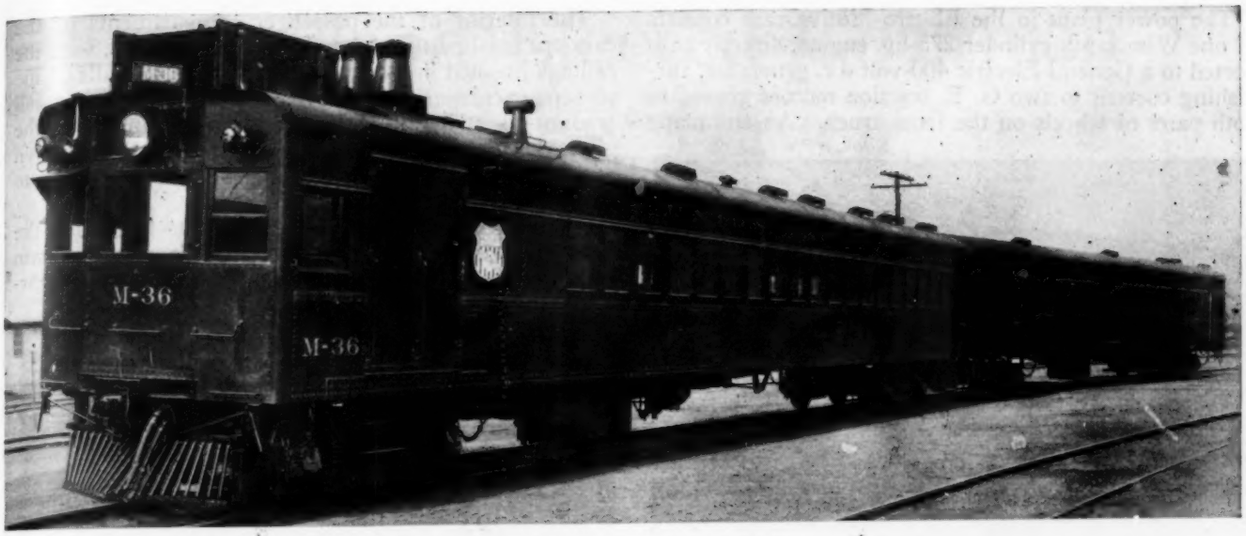


The Great Northern's "Oriental Limited" in Montana



Electro-Motive Gas-Electric Car and Trailer Built by Pullman for Service on the Union Pacific

Union Pacific Gas-Electric Cars

Motor cars seat 74 and 44 passengers respectively—Trailers carry baggage and mail exclusively

THE Union Pacific has recently received four gas-electric rail cars, and eight combination baggage-mail trailer cars, from the Pullman Car & Manufacturing Corporation, Chicago. Power plants for the gas-electric cars were furnished by the Electro-Motive Company, Cleveland, Ohio. In addition, two combination passenger-baggage gas-electric rail cars have been received from the J. G. Brill Company, Philadelphia, Pa., all of this equipment being designed both for safety and efficiency in operation, and for the comfort and convenience of passengers. Particular attention has been paid to the artistic arrangement, decoration and equipment of the passenger compartments. To give the two-car trains a uniform appearance, the general lines of the trailers have been made to conform with those of the power cars, as shown in one of the illustrations.

These cars are of all steel construction, having oval roofs, and are equipped with enclosed vestibules and modern trap-doors. The trucks are of the four-wheel type having standard A. R. A. journal bearings. The cars are provided with the latest air brake equipment, especially designed for rail car service.

As shown in the table of general dimensions, the Electro-Motive gas-electric cars are 71 ft. long, weigh slightly over 55 tons and have a seating capacity of 74. Dimensions of the various compartments are given in the table. The Pullman trailers also are 71 ft. long and are designed to weigh about 38½ tons, as compared with 65 tons, the weight of standard steam-train bag gage-mail cars on the Union Pacific. This reduction in weight was accomplished without sacrifice of ample strength necessary to meet the requirements of service in which these cars will be placed. The Brill gas-electric cars are 73 ft. long, with various compartment lengths, as indicated in the table, and have a total seating capacity of 44.

General Dimensions and Seating Capacity of New Union Pacific Cars

Builder	Pullman	Pullman	Brill
Type of car	Electro-motive passenger	Motor-train trailers	Gas-electric pass. and bagg.
No. of cars	4	8	2
Length over body	71 ft.	71 ft.	73 ft.
Length, passenger comp.	35 ft. 9 in.	.....	19 ft. 8 in.
Length, smoking comp.	19 ft. 3 in.	.....	13 ft. 8 in.
Length, baggage	.....	54 ft. 7 in.	23 ft. 6 in.
Length, mail comp.	.....	15 ft. 1 in.	.....
Length, engine room	11 ft. 7 in.	.....	11 ft. 11 in.
Seating cap., pass. comp.	50	.....	26
Seating cap., smok. comp.	24	.....	18
Total seating capacity	74	.....	44
Weight on front truck	70,100 lb.	41,600 lb. (Mail End)	68,200 lb.
Weight on rear truck	40,400 lb.	35,300 lb. (Bagg. End)	44,000 lb.
Total weight	110,500 lb.	76,900 lb.	112,200 lb.
Engine rating	275 hp.	.....	275 hp.

Brill Passenger-Baggage Gas-Electric Car with Single Power Plant

The power plant in the Electro-Motive cars consists of one Winton six-cylinder 275-hp. engine, directly connected to a General Electric 400-volt d.c. generator, furnishing current to two G. E. traction motors geared to both pairs of wheels on the front truck. An automatic

Well-Lighted, Comfortable and Attractive Passenger Compartment Interior

electric air compressor is installed, having a capacity of 22 cu. ft. of free air per minute. The engine-cooling apparatus consists of roof-type water cooling radiators. Special lubricating-oil coolers are provided.

The power plant of the Brill gas-electric cars, consists of one Hall-Scott six-cylinder 275-hp. engine, directly connected to a Westinghouse 600-volt d.c. generator, furnishing current to two Westinghouse traction motors geared to both pairs of wheels on the front truck. The auxiliary apparatus is practically the same as that applied to the other power cars. Both engines were especially constructed and equipped to burn distillate as fuel. Special attention was given to the engine-room arrangements in order to provide a clear vision for the motorman.

The gas-electric cars are equipped with both men's and women's flush toilets, wash basins, towel cabinets, sanitary water coolers, etc. In order to provide the maximum of comfort for the passengers, particular attention was paid to the seats and their arrangement, and to the provision of adequate heating, lighting and ventilation facilities.

A special design of stationary-type seat was developed for these cars, well cushioned and upholstered in a blue frieze plush which harmonizes with the general color scheme of the compartment. The seat backs are upholstered in a manner to give an individual chair effect.

The heating apparatus consists of a low-pressure hot water heater, burning hard coal. To increase the radiating efficiency of the heating coils, special fin tubing is used. Ample light is provided by fixtures located in the center of the ceiling, giving a well-diffused light throughout the car body. Proper ventilation is secured by an ample number of induced draft ventilators located in the roof. The entire floor of the passenger compartments is covered with brown battleship linoleum, which not only gives a well-cushioned footing, but acts as an insulator and provides an excellent sound deadening feature. Single windows are used throughout. However, detachable storm windows are provided for use during the winter season.

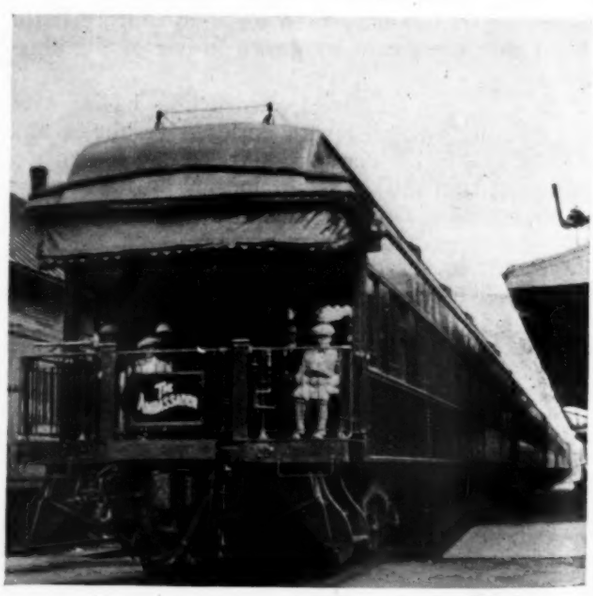
The interior of the passenger compartments of the cars are finished throughout in browns or tans, with the ceilings finished in a cream color. The side walls of the passenger compartments have been enlivened by a small amount of striping, of a color harmonizing with the general finish. The window shades are light brown with a small over-all figure giving the proper contrast to the general color scheme.

The hardware throughout the cars, including the lighting fixtures, door trimming, window and curtain fixtures, etc., is finished in a silver effect which har-

Fully-Equipped Mail Compartment in the Baggage-Mail Trailers

monizes with and enhances the blue upholstering. The 15-ft. mail compartments in the baggage-mail trailers are completely equipped. The 54-ft. baggage-rooms, are provided with fish racks, desk, wash-stand, etc.

* * *



The "Ambassador," Boston-Montreal Train of B. & M. and C. V. at Waterbury, Vt.

Buckland Elected Chairman of New Haven

Election also grants authority to act as president of the road until successor to the late Edward J. Pearson is chosen

EDWARD G. BUCKLAND was on January 3, elected chairman of the board of directors of the New York, New Haven & Hartford, with authority to exercise the powers and perform the duties of president until such time as a president is elected. Mr. Buckland has been vice-president of the New Haven in charge of law, finance and corporate relations since August 1, 1924.

The death of Edward J. Pearson on December 7 left the presidency of the New Haven vacant, since the committee of directors, appointed on November 26, at the time of the late chief executive's resignation, has not acted on the nomination of a successor. Mr. Buckland's office of chairman is newly created, while the committee is still engaged in the selection of a new president for the road.

Edward G. Buckland

Mr. Buckland was born at Buffalo, N. Y., on December 31, 1866, and in 1887 was graduated from Washburn College, Topeka, Kan., with the degree of B.A. In 1921 he received an honorary LL.D. degree from that institution.

Upon the completion of his collegiate course at Washburn, Mr. Buckland entered the Yale University Law School at New Haven, Conn., and in 1889 was awarded an LL.B. degree there. Six years later, in 1895, he was awarded an honorary degree of M.A., also by Yale University.

In 1888 Mr. Buckland became associated with the firm of Townsend & Watrous in the general practice of law at New Haven. He continued with this firm, which later became Watrous & Buckland, until 1898 when he first entered the service of the New York, New Haven & Hartford as the road's Rhode Island attorney, with headquarters at Providence, R. I. For nine years of the ten-year period, ending with 1898, when Mr. Buckland was engaged in private law practice at New Haven, he was also successively an instructor and an assistant professor of law at Yale.

After serving six years as the New Haven's Rhode Island attorney his jurisdiction was extended in 1904 when he was also appointed attorney for Connecticut and New York. He continued in this latter capacity until January 1, 1907, when he was promoted to a vice-presidency. In 1914 his duties were extended to cover also the office of general counsel.

With the inauguration of government operation of the railroads in 1918 and the transfer of the late Edward J. Pearson from the New Haven presidency to the Federal managership of the road, Mr. Buckland became president of the corporate organization and continued in this office until February 28, 1920, when private operation was resumed.

He then reverted to his former position as vice-president and general counsel to serve again in that capacity until August 1, 1924, when, under a revision of the New Haven organization, his jurisdiction was extended and he became vice-president in charge of law, finance and corporate relations.

Since Mr. Buckland has served the New Haven in executive capacity all during the 1914-1928 period of its financial difficulties and subsequent rehabilitation he was an active figure in the late President Pearson's successful administration of the property. The Pearson regime culminated in the declaration of three common dividends during 1928, which disbursements marked the first returns New Haven common shareholders had received since December, 1913. Thus Mr. Buckland now becomes chairman and operating head of the rehabilitated New Haven road after many years of prominent participation in the work of its rehabilitation.

How remarkably rapid has been this recovery of the New Haven without the intervention of receivership is indicated in an examination of the operating results during the past 10 years, the most trying period for the late Mr. Pearson and his executive associates of whom Mr. Buckland was the most prominent. The 1919 deficit after charges of $877,060 reached $14,121,623 in 1921 when its rise was checked to bring the 1922 and the 1923 deficits respectively down to $4,865,768 and $2,917,106. The trend was definitely reversed in 1924 when a surplus of $2,998,650 was reported. This net after charges reached $10,432,661 for 1927 while the operating ratio was down to 71.72 as against an 80.50 ratio in 1923. Further progress was made during 1928 when eleven month earnings amounted to $6.90 a share on the common stock as against comparable 1927 earnings of $5.17. The operating ratio for November, 1928, was 61.03 and for the 11 months was 68.75 as against respective 1927 operating ratios of 68.85 and 71.63.

Chairman Buckland, therefore, assumes control of

the New Haven affairs at a time when optimism regarding the road's prospects is widespread. "A return of the New Haven to the highest investment consideration which it formerly enjoyed" was recently predicted in a statement issued by a leading investment banking house.

Freight Car Loading

WASHINGTON, D. C.

COMPLETE reports for the year show that 51,576,731 cars were loaded with revenue freight in 1928. This was a decrease of 59,075 cars or .1 per cent as compared with 1927 and a decrease of 1,522,088 cars or 2.9 per cent compared with 1926.

Loading of revenue freight exceeded one million cars in 24 weeks in 1928 as compared with 28 weeks in 1927 and 27 weeks in 1926.

Total loading by commodities for 1928 compared with 1927 follows:

	1928	1927
Grain and Grain Products	2,511,055	2,378,742
Live Stock	1,520,387	1,546,967
Coal	8,769,373	9,233,221
Coke	552,338	548,443
Forest Products	3,334,679	3,422,609
Ore	1,907,658	1,891,773
Merchandise less than Carload Lot Freight	13,155,067	13,245,186
Miscellaneous Freight	19,846,174	19,368,865
Total	51,576,731	51,635,806

Loading during the week ended December 29 amounted to 667,586 cars, a decrease of 12,968 cars as compared with the total in the corresponding week of 1927 and of 66,695 cars as compared with the 1926 total. A slump in coal loading was accountable for the major part of the decrease from the weekly totals in the two preceding years. Coal loading amounted to 119,095 cars, a decrease of 22,237 cars as compared with 1927 and of 52,053 cars as compared with 1926. Loading in the Allegheny, Central Western and Southwestern districts was larger than in the corresponding week of 1927 but other districts showed declines. The summary, as compiled by the Car Service Division of the American Railway Association, follows:

Revenue Freight Car Loading
Week ended December 29, 1928

Districts	1928	1927	1926
Eastern	156,851	157,962	169,139
Allegheny	142,383	139,563	159,858
Pocahontas	28,172	33,643	41,155
Southern	90,850	102,699	107,633
Northwestern	79,355	82,994	84,195
Central Western	109,046	104,577	112,639
Southwestern	60,929	59,116	59,662
Total Western Districts	249,330	246,687	256,496
Total All Roads	667,586	680,554	734,281
Commodities			
Grain and Grain Products	36,984	36,024	35,213
Live Stock	21,502	22,154	23,762
Coal	119,095	141,332	171,148
Coke	10,262	9,372	11,132
Forest Products	32,859	35,219	38,037
Ore	8,370	6,682	9,345
Merchandise L. C. L.	192,905	192,232	198,308
Miscellaneous	245,609	237,539	247,336
December 29	667,586	680,554	734,281
December 22	897,968	829,810	768,040
December 15	964,086	868,750	944,396
December 8	984,352	877,676	992,455
December 1	899,786	918,487	1,051,219
Cumulative total, 52 weeks	51,576,731	51,635,806	53,098,819

The freight car surplus for the period ended December 22 averaged 298,004 cars, as compared with 267,129 cars on December 15. The total included 142,886 box cars, 108,656 coal cars; 24,786 stock cars, and 11,443 refrigerator cars.

The summaries for the 22 weeks ending December 15 and 22 are as follows:

Week ended Saturday, December 15, 1928

Districts	1928	1927	1926
Eastern	216,808	188,556	213,354
Allegheny	197,379	172,540	198,458
Pocahontas	57,295	47,991	57,862
Southern	152,347	141,626	155,036
Northwestern	111,597	107,537	100,097
Central Western	145,823	137,338	141,443
Southwestern	82,837	73,162	78,146
Total Western Districts	340,257	318,037	319,686
Total All Roads	964,086	868,750	944,396
Commodities			
Grain and Grain Products	51,722	44,901	45,716
Live Stock	31,691	32,294	30,299
Coal	198,525	173,274	230,679
Coke	10,943	9,973	11,783
Forest Products	61,802	53,885	58,460
Ore	10,377	9,135	8,769
Merchandise L. C. L.	251,984	246,312	246,837
Miscellaneous	347,042	298,976	311,853

Week ended Saturday, December 22, 1928

Districts	1928	1927	1926
Eastern	203,234	184,510	175,601
Allegheny	187,284	164,378	168,486
Pocahontas	54,618	45,975	39,325
Southern	137,389	130,796	118,426
Northwestern	100,565	102,512	87,471
Central Western	136,811	131,379	116,964
Southwestern	78,067	70,260	61,767
Total Western Districts	315,443	304,151	266,202
Total All Roads	897,968	829,810	768,040
Commodities			
Grain and Grain Products	43,085	45,013	38,354
Live Stock	26,371	23,886	22,406
Coal	191,787	176,696	179,634
Coke	10,661	9,944	11,019
Forest Products	58,342	53,116	48,069
Ore	10,946	8,171	8,715
Merchandise L. C. L.	241,649	236,043	207,339
Miscellaneous	315,127	276,941	252,504

Car Loading in Canada

Revenue car loadings at stations in Canada for the week ended December 29 totalled 44,438 cars, the drop being due to the holiday season. Total loadings for the 52 weeks were the heaviest on record, exceeding 1927 loadings by 300,309 cars, or 9 per cent.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada		
Dec. 29, 1928	44,438	32,626
Dec. 22, 1928	61,976	37,328
Dec. 15, 1928	70,826	40,808
Dec. 31, 1927	48,219	29,630
Cumulative Totals for Canada		
Dec. 29, 1928	3,697,106	2,053,095
Dec. 31, 1927	3,396,797	1,918,772
Jan. 1, 1926	3,258,717	1,935,725

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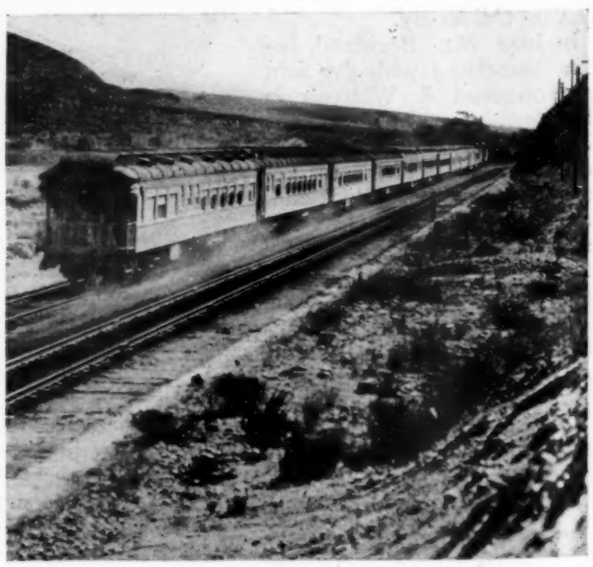


On the D. L. & W.

Annual Report of the Bureau of Locomotive Inspection

Only 24 per cent of the locomotives inspected were found defective—Lowest number ever recorded

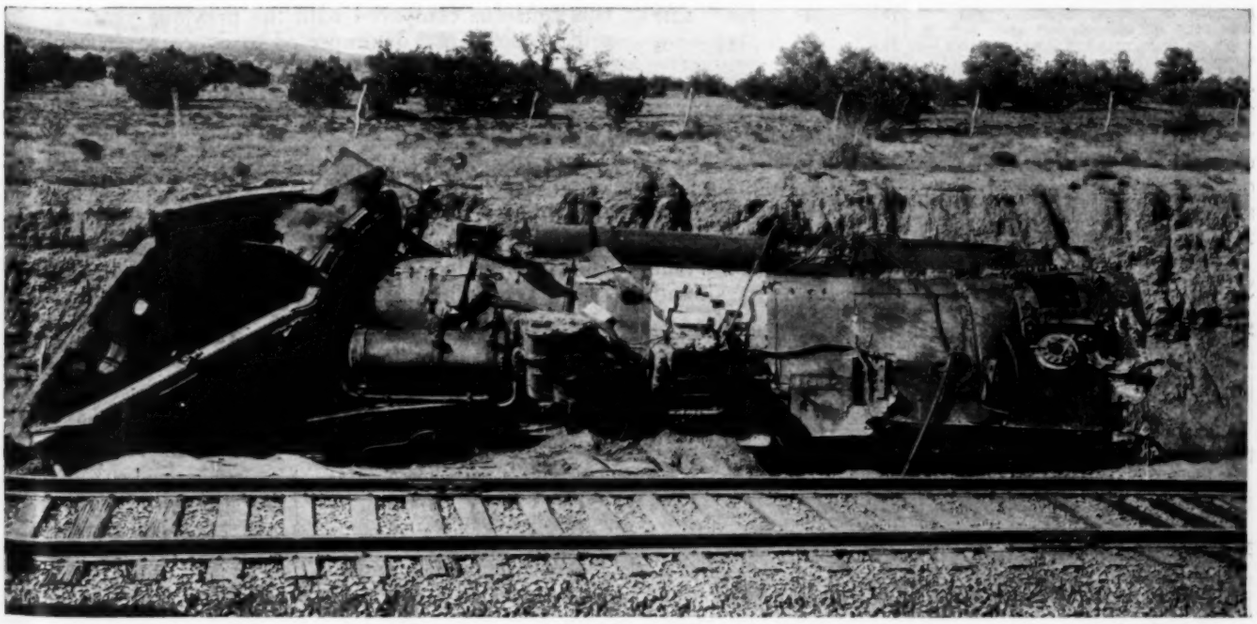
THE seventeenth annual report of the Bureau of Locomotive Inspection to the Interstate Commerce Commission shows that for the fiscal year ending June 30, 1928, only 24 per cent of the locomotives inspected were found with defects or errors in inspection that should have been corrected before the locomotives were placed in service. This percentage figure, as shown in the chart, is the lowest that has been obtained in any year. The number of accidents and casualties caused by failure of locomotive parts was also reduced to the lowest figure yet reported, with 419 accidents, resulting in 493 casualties.

Defective reversing gears were the cause of the greatest number of accidents during the year covered by the report. The 35 accidents reported as due to this cause, resulted in injuries to 35 persons. As in preceding reports, defective reversing gears, squirt hose, grate shakers, couplers, brakes and brake rigging are the most prolific sources of accidents. Crown-sheet failures, due to low water, continue to be the cause of about the same number of accidents each year. In the year ending June 30, 1924, 42 accidents were attributed to this cause, 22 in 1925, 37 in 1926, 19 in 1927 and 22 in 1928. Crown sheet failures also caused the largest number of fatalities. Sixty-six persons were killed in 1924 of which 45 deaths were due to crown sheet failures. Half of the deaths in 1925 were due to the same cause. In 1926 there were 22 persons killed, 17 of whom were killed in this type of accident, and again in the year ending June 30, 1927, 17 deaths out of a total of 28 were on account of crown sheet failures. Thirty persons were killed in 1928, of which 20 deaths were attributed to crown sheet failures. The following is an abstract of Mr. Pack's report.

A summary of all accidents and casualties to persons occurring in connection with steam locomotives, compared with the previous year shows a decrease of 14.1 per cent in the number of accidents, an increase of 7.1 per cent in the number of persons killed, and a decrease of 10.4 per cent in the number of injured during the year.

There has been a substantial decrease in the percentage of locomotives inspected by our inspectors found defective. For instance, during the year, 24 per cent of the locomotives inspected were found with defects or errors in inspection that should have been corrected before being put in use, as compared with 31 per cent for the previous year, 40 per cent for the fiscal year ended June 30, 1926, 46 per cent for the year 1925, 53 per cent for the year 1924, and 65 per cent for the year 1923, when there occurred 1,348 accidents, resulting in the death of 72 persons and the serious injury of 1,560 others, when prosecutions in the courts for the more flagrant violations of the law were begun, as compared with 419 accidents during the fiscal year, resulting in the death of 30 persons and the serious injury to 463 others. The percentage of defective locomotives this year reached the lowest point ever recorded, and is indicative of the general condition of the locomotives throughout the entire country.

While there has been a substantial decrease in the total number of accidents and casualties to persons,



Result of the Failure of a Fusion-welded Seam Joining the Firebox and Combustion Chamber Crown Sheet—The Boiler Came to Rest in Reverse Position 188 ft. Ahead of the Point of Explosion

with a substantial decrease in the number of defective locomotives, our investigations indicate that a further reduction would have resulted had more thorough inspections been made by some of the carriers, and the requirements of the law and rules been complied with in respect to the proper repair of defects in equipment that affect safety. While there has been a substantial improvment in the inspection and maintenance of locomotives and tenders, there are some railroads whose records do not compare favorably, and where more exertion may be required in bringing about the purpose and intent of the law.

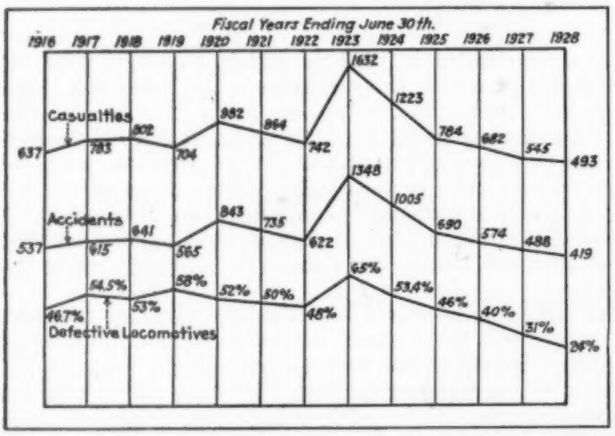


Chart Showing the Relation of Defective Locomotives to Accidents and Casualties Resulting from Locomotive Failures

In my fifteenth and sixteenth annual reports attention was called to the danger resulting from the use of reduced body stay bolts having telltale holes which do not extend into the reduced section at least 5/8 in. Accidents resulting in serious and fatal injuries continue to occur with this type of bolt because of the telltale holes not being of sufficient depth to perform the function for which they are intended.

Accidents and Casualties Caused by Failure of Some Part of the Locomotive, Including the Boiler or Tender

	Year ended June 30				
	1928	1927	1926	1925	1924
Number of accidents	419	488	574	690	1,005
Per cent of increase or decrease from previous year	14.1	14.9	16.8	31.3	25.5
Number of persons killed	30	28	22	20	66
Per cent of increase or decrease from previous year	[1]7.1	[1]27.3	[1]10	69.7	8.3
Number of persons injured	463	517	660	764	1,157
Per cent of increase or decrease from previous year	10.4	21.6	13.6	33.9	25

[1] Increase.

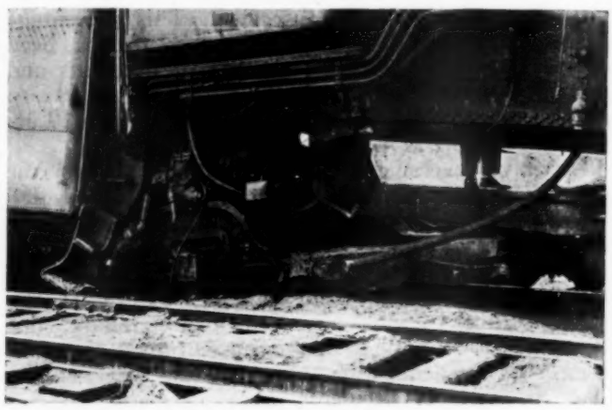
Many of these bolts are improperly applied, the bolts being too long to permit full engagement of the threads on the enlarged ends with the threads in the holes in the sheets. This condition is indicated by persistent leakage after the bolts are installed and attempts to stop the leakage results only in thinning and flattening the heads.

Derailments and Casualties Caused by Defects in or Failure of Some Part of the Locomotive or Tender

	Year ended June 30				
	1928	1927	1926	1925	1924
Number of derailments [1]	14	15	23	22	30
Number of persons killed	1	1	2	..	3
Number of persons injured	27	23	49	52	112

[1] Only derailments reported by carriers as being caused by defect in or failure of parts of the locomotive or tender were investigated or counted.

As in former years, boiler explosions caused by crown sheet failures were the most prolific source of fatal accidents. Sixty-six and six-tenths per cent of the fatalities during the year were attributable to this cause. There was an increase of 15.8 per cent in the number of boiler explosions or crown-sheet failures, and an increase of 17.6 per cent in the number of fatalities from this cause as compared with the previous year.



Result of Crown Sheet Failure Caused by Low Water—The Force of the Explosion Raised the Rear of the Locomotive, the Front of the Tender, Derailed All the Driving Wheels and Broke the Trailing Truck Radius Bar

Explosions may be expected to increase in violence with the increasing size of locomotive boilers and the higher pressure carried therein, and accidents of this nature may well be expected to increase as the duties and responsibilities of enginemen become more complex and exacting. Therefore, the best thought and efforts of the various agencies concerned with design, construction, maintenance, equipment, and operation must necessarily be exerted, and all practical safeguards provided if this class of accidents is to be reduced and maintained at a minimum.

Number of Persons Killed and Injured in Steam Locomotive Accidents

	1928		1927		1926		1925		1924	
	Killed	Injured	Killed	Injured	Killed	Injured	Killed	Injured	Killed	Injured
Members of train crews:										
Engineers	8	151	8	181	5	210	8	230	19	330
Firemen	11	161	9	179	6	230	6	300	22	434
Brakemen	4	54	4	51	3	77	2	84	9	102
Conductors	..	16	..	25	2	28	..	25	2	39
Switchmen	..	15	1	13	..	19	..	23	1	29
Roundhouse and shop employees:										
Boiler makers	3	5	..	11	..	5	..	6	1	24
Machinists	2	4	1	5	..	5	..	13	1	9
Foremen	..	1	..	1	..	3	..	..	1	6
Inspectors	..	1	..	..	..	..	..	2	1	3
Watchmen	1	2	2	4	1	5	1	3	..	5
Boiler washers	..	..	1	2	..	2	..	5	2	5
Hostlers	..	10	1	7	..	9	..	16	..	14
Other roundhouse and shop employees	..	8	..	10	1	15	..	10	6	34
Other employees	..	12	1	9	3	10	1	13	..	16
Nonemployees	1	23	..	19	1	42	2	34	1	107
Total	30	463	28	517	22	660	20	764	66	1,157

O'Fallon Valuation Case Argued in Supreme Court

WASHINGTON, D. C.

ORAL arguments were heard by the Supreme Court of the United States on January 3 and 4 in the St. Louis & O'Fallon recapture-valuation case, called "the greatest lawsuit in history" by some of the newspapers, which have sought to measure its pecuniary importance by figures ranging from $400,000,000 to $52,000,000,000. The former figure is supposed to represent an estimate made by the Bureau of Finance of the Interstate Commerce Commission of the total amount which may be recapturable since 1920, and the latter was based on a statement that the railroads are claiming about double an estimate of $22,000,000,000 to $26,000,000,000 for the total value the commission might reach on the basis used by it in the O'Fallon case. The commission, in its brief, said that if the contentions of the appellant railroads (St. Louis & O'Fallon and Manufacturers') in this case are sound, the $18,900,000,000 summary valuation made by it in 1920 must be increased approximately 60 per cent or over $11,000,000,000, but the railroad counsel said they did not claim that all railroads should be valued on the basis urged for the O'Fallon.

In the commission's brief an estimate was also given as to the amount of rate increase which might result from such a valuation, by applying the 60 per cent increase to the 30 per cent of railway revenues remaining above operating expenses, or 18 per cent, while the railway brief said that even if the 60 per cent increase were used it should be applied only to the 17 per cent of net railway operating income, which would produce a rate increase of only 10 to 12 per cent. Even on the basis of an $11,000,000,000 increase in valuation, it was stated, a return of 5¾ per cent on this increase would be only $632,500,000, or less than one per cent of the total value of agricultural, mineral and manufactured products of the United States for a year.

Specifically the case involves $226,800 which the commission ordered the O'Fallon to pay as one-half its excess income for ten months of 1920, and the years 1921, 1922 and 1923, with interest at 6 per cent from May 1 of each year, but as the commission said in its report that what it did in this case it must in principle do for all the railroads it has been taken as a test case in an effort to obtain from the court a review of the commission's valuation methods, and particularly a decision as to the weight, if any, which should be given by the commission to current costs of reproduction as distinguished from estimates of actual cost.

Arguments were presented by Daniel N. Kirby and Frederick H. Wood in behalf of the O'Fallon and Manufacturers'; George W. Wickersham as special assistant to the Attorney General and Walter L. Fisher as special counsel for the Interstate Commerce Commission, and Donald R. Richberg, representing the National Conference on Valuation of American Railroads, as *amicus curiae,* or perhaps as *amicus Senatus,* because he was allowed by the court to participate after the Senate had passed a resolution requesting it to do so. Mr. Wickersham and Mr. Fisher were members of the Cabinet during the administration of President Taft, now Chief Justice, and the name of Charles Nagel, also a member of his Cabinet, appeared on the O'Fallon brief.

So large an attendance was attracted by the case that it was difficult to obtain seats in the court-room. The court allowed the railroads two hours and a half for the argument and Messrs. Richberg, Wickersham and Fisher each an hour and a quarter, but it later allowed Mr. Wood a few minutes additional time for rebuttal. Justice Pierce Butler, who was formerly of counsel for the railroad valuation committee, did not sit with the court during the argument.

Both Mr. Kirby and Mr. Wickersham devoted much of their time to the question as to whether the O'Fallon and the Manufacturers' are operated as a single system. Mr. Kirby said that if the court should not sustain the findings of the lower court and of the commission that they are not, the case would go back to the commission, and he reviewed the evidence on that point at some length, saying that although the roads are separated by the Mississippi river they are connected by the tracks of the Terminal Railroad Association of St. Louis, which has the only railroad crossing the river, and that there is no "transportation gap." Mr. Wickersham contended that, although under common control, the two roads have no "common pocket-book" and are operated as two distinct roads, a coal road in Illinois and a switching road in Missouri.

Justice VanDevanter asked if there was any direct financial relation between the two companies, such as a guaranty of securities of one by the other. Mr. Kirby said there was not but that three directors of one company constituted a majority of the board of the other and that most of the stock of both was owned by the Adolphus Busch estate.

Following Mr. Kirby's opening argument Mr. Wood took up the question of the commission's valuation methods, saying that the commission did not determine the value in accordance with the law, but on the basis of its conception as to what the law ought to be and that even under the prudent investment theory its findings of value were wholly without evidentiary support.

Mr. Wood's Argument

"According to the evidence of a competent valuation engineer in the employ of the commission," he said, "if instead of thus valuing the major portion of the property at its approximate cost at obsolete pre-war prices, it had given consideration to the present enhanced costs of construction, the value of the structural elements of the property would have been not less than fifty per cent higher. The only consideration given to such enhanced price was to reject them altogether as an irrelevant fact entitled to no consideration whatsoever in determining the value of this or any other railroad property. Under the decisions of this court, it is a relevant fact to be considered in connection with other relevant facts. Property is not all of the same quality. The rule of Smyth v. Ames is a flexible rule adaptable to the circumstances of each case. In certain cases, as for example, the McCardle case and the Southern Pacific case, the circumstances were such that it was held that dominant weight must be given to reproduction costs. This is such a case because there are no other relevant facts and circumstances to justify the rejection of replacement costs as that fair measure of value of the physical elements of the property

which it was taken and held to be in the McCardle case. The location of the O'Fallon, the demand for its services and the profitableness of its use at existing rates, of themselves concededly low, are all shown by the record to be such as to justify its reproduction at the present level of prices if it were non-existent.

"Unless this court is to reverse all prior decisions in respect of the valuation of public property, it is plain that the order must be set aside. The protection of the Constitution extends to the regulation of property already devoted to public use as well as to the taking of such property for public use. It is respectfully submitted that in the valuation of this property effective weight should have been given to the current price level as measured either by present costs of construction or by the relative purchasing power of the dollar now as compared with the pre-war period, because such basis of determination is supported on both principle and authority

"Even though, contrary to its previous rulings, this court should hold that original cost is synonymous with and the proper measure of value, the order of the commission in this case is void because that which has been accepted in the opinion to be representative of estimated original cost is unsupported by any evidence whatsoever and because original cost is not capable of being ascertained by the method employed. The commission's conclusion that aggregate value of all railroads, if found by this formula, will approximate the investment upon which its conclusions of policy and expediency are largely based, is likewise seen to be without foundation.

Commission Sought a Pre-Determined Result

"Congress contemplated that the value of each railroad should be determined by a consideration of all relevant facts and circumstances pertaining to it. Aggregate value was to be the sum of values so separately established. The commission on the other hand, insofar as it was guided by the consideration named, would first determine aggregate value and then distribute such value among individual railroads upon the basis of the formula employed in the determination of aggregate value, which in turn, under this theory would be fixed at whatever sum would be necessary to produce a pre-determined rate result. Whether the economic value of all railroad property in the United States equals its cost of reproduction at current prices is a debatable question, the answer to which can have no bearing upon determining the value of this property. The economic value of this railroad is clearly equal to its cost of reproduction less depreciation.

"It was the duty of the commission to determine the value of this property by a consideration of all relevant facts and circumstances. It did not do so. Instead, it determined its value upon the basis of original cost because it believed that such a basis of valuation would produce results conformable to its views of administrative and economic expediency and of public policy. In endeavoring to obtain approval from this court of such a method of determining value, it is in effect undertaking to immunize its valuations from review by making them depend upon such considerations of policy and expediency and thus be beyond judicial review.

"The report says the valuation made was based upon consideration of the entire record. The commission should be judged by what it did, not by what it said. To the extent it is judged by what it said, it is to be judged by the report as a whole—not by a mere detached sentence. If a commission, state or federal can immunize itself against a review of its finding of value by a mere statement that it has considered all relevant facts and circumstances when the value found, the method by which found, and the express justification offered for the finding, all show that it did not do so and that it was not undertaking to determine present value as defined by this court, but the approximate investment in the property, it follows that there may be no judicial review of such valuations."

Mr. Richberg Says Railroads Have No "Real Value"

Mr. Richberg took the position that the ascertainment of value for rate-making purposes is a matter for legislative discretion and not subject to judicial review except to see that the commission's discretion is exercised within the limits imposed by Congress. He defined value as "the power to command a price" and argued that the value of railway property, being subject to governmental regulation which implies the possibility of a limitation of profits, is on a different footing from other property. He was frequently interrupted by questions from the bench, particularly by Justices McReynolds and VanDevanter, who did not seem particularly impressed with his theory. Justice VanDevanter said he did not understand at all that the power of regulation contemplates any reduction in value. Justice McReynolds said the commission is instructed to find the fair value and asked what is "fair value." Mr. Richberg replied that value is only relative, and can only be determined in relation to competitive conditions, and that railroad property has no "real value," unless it be the market value of the railroad securities, which he said no one wants to take as the measure.

If reproduction cost is to be used, Mr. Richberg said, it should be the cost of reproducing the service rather than the plant and that this might be done by a new plant costing half as much as the old one.

When Mr. Richberg said that the result of the rates which are fixed must be to give the owner of the property a reasonable value to his property Justice VanDevanter interposed:

"I thought it was a reasonable return on the property. That is the language of the court, is it not?"

"That is the language of the court," replied Mr. Richberg, "but how value can be determined, which itself is the result of earning power, before the proper earning power has been ascertained, seems to me to be beyond calculation."

"I think you are trying to reverse the process and to make it clear that there can be no criterion of value," said the Justice. "It would all rest with the rate-making body, and whatever they said about it would be the end of it—which would be quite destructive of all the rules laid down on the subject by this court."

When Mr. Richberg said the carrier is asking for the absolute application of cost of reproduction new, less depreciation, if any, Justice VanDevanter interrupted saying he did not quite understand that that was what they were contending for.

Mr. Wickersham, after arguing that the commission had properly treated the O'Fallon as a separate railroad, said that another question at the threshold of the case is whether there is any confiscation if the net income left to the O'Fallon after deduction of the sums sought to be recaptured by the commission was more than a fair return. He argued that, as held by the lower court, there was no "taking " by the government because there was left to the O'Fallon, including the amount set aside for a reserve fund under section 15a, an amount equal to 8 or 9 per cent on its own figure as to cost of reproduction.

On the valuation question Mr. Wickersham laid stress on the question of practicability, saying that Congress had contemplated that the commission should first make a valuation as of a given date and then keep account of subsequent additions. He asked the court to consider whether the law could be administered with a revalua-

tion every year. Contending that the commission's method tends to a stabilization of railroad values, he said that the result of the Transportation Act and the commission's administration of it has been the greatest era of prosperity in the history of the railroads. As an illustration he said the railroads since 1920 have issued over $5,000,000,000 of new securities and that the cost of capital represented by bonds has been reduced from 7.5 to 4.68 per cent.

The Commission's Argument

Mr. Fisher devoted his argument mainly to the valuation question, saying that value for rate-making purposes is different from the economic concept of value and that its determination must rest in the judgment of an expert tribunal. The effect of the plan proposed by the railroads, he said, would be destructive of their financial stability. If their present prosperity, under a rate structure based on a valuation reached by substantially the same methods as were used in the O'Fallon case, has been attained without yet reaching a fair return on that valuation, he said, we may assume there will be no confiscation if it is not increased to a reproduction basis, and he suggested that what the railroads need is an increase of rates to produce the fair return which the act contemplated.

Mr. Fisher apparently was trying hard to create the impression that the commission had kept within the rule of the court's decisions in many cases that some effective weight must be given to reproduction costs, by saying that the commission's figures could not be analyzed by any formula and that it had allowed for the 1919 basic value of the O'Fallon a sum $70,000 in excess of the result which would have been produced by the application of 1914 unit prices. If the commission had applied an index number of 140 to its 1914 valuation, he said, the result would have been somewhat less than it did reach, but he insisted that it had not used any mathematical process.

Justice McReynolds repeatedly asked whether the commission had given any attention at all to any increased value, after the basic value was reached. When Mr. Fisher said it had not by any arithmetical process he asked if it had in any way. The commission got all the evidence it could on any element that has been suggested, Mr. Fisher replied, and then proceeded to give its best judgment after giving consideration to all of them, but he finally admitted that it had made no subsequent revision of its basic value for each of the recapture years.

At one point Justice VanDevanter asked Mr. Fisher if he was contending that if the commission took account only of the original investment, and additions afterwards, without regard to the time of the original cost, that was all that was necessary, that that would answer the constitutional requirements.

"I am of the opinion", replied Mr. Fisher, "that if Congress passed an act recognizing the original investment, it would be constitutional."

When Mr. Fisher said he had understood Mr. Wood to concede that if Congress had used that language it would have been constitutional Justice VanDevanter said he had not understood him to make that contention and that if he did he would not pay any attention to it.

Justice McReynolds said: "What we have here is a statute which says you must value the property. Now, I would like to know what your construction of that statute is, because that, after all, is the important point." After Mr. Fisher had discussed the statute at some length the Justice interposed: "Now this act says and this court has said, that they have got to give consideration to reproduction value. Now has this commission done that in this case?"

"Well, as I read it, it certainly has," replied Mr. Fisher.

"Now I understand from what was read that the commission expressly repudiated that idea," said the Justice. He read from the commission's statement on that point and asked what it meant.

He asked if Mr. Fisher meant by "original investment" the "present or the original value of that which is invested in the undertaking."

Mr. Wood, at the beginning of his rebuttal argument, referred to the commission's own statement in the O'Fallon report that it had given weight to changes in general price levels "in so far as they have been reflected in prices paid for new construction" and that "we know of no other way of giving weight to this factor which is not dependent upon caprice, unless full weight be given under the current reproduction cost doctrine."

After all, he said, the Transportation Act is simple in principle, and if it is properly interpreted many of the difficulties which the commission finds would disappear. He pointed out that the commission is given discretion to fix the percentage of fair return and in doing so to give consideration to the necessity of maintaining an adequate system of transportation, whereas the commission in its brief had cited this provision of the statute as though it were among the directions given to the commission in the determination of value. For this rational scheme of regulation, he said, the commission would substitute one by which, instead of first determining aggregate value and fixing a rate of return thereon, it should determine the revenues necessary to sustain the credit of the carriers and fix a value which at a given rate of return would produce such revenues.

There is no contention, Mr. Wood said, that the commission should revise its basic valuations each year, but that railroads should be valued in present-day dollars like other property, in recognition of a price level which remains approximately the same over a period of years and subject to revision only to meet a pronounced change in the standard.

"It is value which the commission is directed by law to find," Mr. Wood said, "not cost and not something else. We do not object to its making a basic valuation as of 1914 or 1919 but to its refusal to make any readjustment of it. Naturally the commission's first valuation work was done at pre-war prices, but the commission then said that corrective factors would be applied. Because Congress knew this is no indication that it contemplated a pre-war valuation to which would be added merely later investment.

"If what the commission has done here and what it says is necessary to be done in the administration of this law is in harmony with the requirements of the statute, then valuation in 1923, 1933 or 1953 becomes a mere office calculation, that may be made by any clerk in the office of the Interstate Commerce Commission, by adding to pre-war valuation at 1914 prices, the recorded cost of subsequent additions and betterments.

"If, instead of pursuing that theory of its functions, the commission had considered the statute, simple as it is, the division in the statute between its function to find value in accordance with the relevant facts and circumstances of each case, the aggregate value to be the sum of all—and then to fix a rate of return on such value which would provide for an adequate transportation system and, at the same time, protect the public against the imposition of exorbitant and unreasonable rates, all the difficulties and complexities with which the commission

seems to think this problem is surrounded would entirely disappear."

Great Northern Brief

A brief was filed in behalf of the Great Northern as *amicus curiae* taking the position that "there is no sound argument which will justify a valuation or a rate base for a going and prosperous railroad at less than the present cost of producing an equally serviceable railroad." Current construction costs must be the dominant factor in the valuation of such a railroad, according to the brief, signed by F. G. Dorety, vice-president and general counsel and Fletcher Rockwood, general attorney.

"There is a vast difference," counsel asserted, "between depriving the commission of its power to regulate rates and declaring that that power is subject to Constitutional restrictions. The Constitution clearly declares that neither the property, nor the transportation which it produces, can be taken without 'due process.' The commission's action must not be arbitrary or unreasonable. It clearly violates this rule when it compels a railroad company to furnish service at rates lower than the cost which the shippers would have to incur in producing the service for themselves, and lower than any other company would be willing to furnish the service for, if the field were unoccupied.

"Regulation of an industry becomes unreasonable and arbitrary when it would impose burdens so onerous that new capital could not be induced to enter the industry at all, except by a subordination or sacrifice of the capital already invested. It would be both arbitrary and unreasonable to invoke the power of regulation to impose restrictions which competition imposes in freely competitive industries, and then to draw these restrictions more closely by regulation than competitive forces themselves would draw them."

Increased Carloading Expected in First Quarter

WASHINGTON, D. C.

SHIPPERS of the country, through estimates of the Shippers' Regional Advisory Boards, anticipate that carload shipments of the 29 principal commodities in the first quarter of 1929, will be approximately 8,048,075 cars, an increase of 373,569 cars above the corresponding period of 1928, or 4.9 per cent. The Shippers' Regional Advisory Boards, covering the entire United States, furnish these estimates periodically to the Car Service Division of the American Railway Association in order that the railways may have a guide as to the service they are expected to be called upon to perform in a given quarter.

Of the thirteen Shippers' Regional Advisory Boards, ten anticipate an increase in their respective districts in transportation requirements for the first quarter of 1929. These are the Atlantic States, Allegheny, Great Lakes, Ohio Valley, Northwestern, Pacific Coast, Southeastern, Southwestern, Trans-Missouri-Kansas and the Pacific Northwest Boards. Those estimating a decrease are the New England, Midwestern and the Central Western Boards.

The estimates are as follows:

Board	1928	1929	Per Cent of Increase or Decrease
New England	167,049	165,163	1.1 decrease
Atlantic States	764,794	805,703	5.3 increase
Ohio Valley	1,018,768	1,137,328	11.6 increase
Northwest	271,657	290,607	7.0 increase
Central-western	318,767	295,350	7.3 decrease
Pacific Coast	285,715	292,735	2.5 increase
Pacific Northwest	254,224	272,527	7.2 increase
Allegheny	1,011,039	1,153,197	14.1 increase
Great Lakes	462,414	506,509	9.5 increase
Southeast	949,381	973,085	2.5 increase
Mid-West	1,252,244	1,210,681	3.3 decrease
Trans-Missouri-Kansas	422,569	433,804	2.7 increase
Southwest	495,885	511,386	3.1 increase

In submitting reports to the Car Service Division, each board estimated what freight car requirements will be for the principal industries located in the territory covered by that board. On the basis of this information, it is estimated that of the 29 commodities, increases in transportation requirements will be required for 23 as follows: Flour, meal and other mill products; cotton; cotton seed and products, except oil; citrus fruits; other fresh fruits; live stock; poultry and dairy products; coal and coke; ore and concentrates; gravel, sand and stone; salt; lumber and forest products; petroleum and petroleum products; sugar, syrup, glucose and molasses; iron and steel, machinery and boilers; cement; brick and clay products; lime and plaster; agricultural implements and vehicles other than automobiles; automobiles, trucks and parts; paper, paperboard and prepared roofing, and chemicals and explosives.

Commodities for which a decrease is estimated are canned goods, which includes all canned food products, catsup, jams, jellies, pickles and preserves; all grain; hay, straw and alfalfa; potatoes, and other fresh vegetables.

Estimates indicate that fertilizer shipments will be approximately the same in the first quarter as for the corresponding period in 1928.

The estimates for various commodities for the first quarter compared with the same period in 1928 are as follows:

Commodity	Actual 1928	Estimated 1929	Estimated per cent Increase	Estimated per cent Decrease
Grain, All	413,544	409,414		1.0
Flour, Meal & Other Mill Products	226,602	241,410	6.5	
Hay, Straw and Alfalfa	81,361	81,097		.3
Cotton	54,984	62,847	14.3	
Cotton Seed & Products, except Oil	45,147	53,317	18.1	
Citrus Fruits	27,933	37,006	32.5	
Other Fresh Fruits	31,159	38,895	24.8	
Potatoes	69,738	65,448		6.2
Other Fresh Vegetables	61,140	55,154		9.8
Live Stock	402,876	406,451	.9	
Poultry and Dairy Products	30,968	31,111	.5	
Coal and Coke	2,805,808	2,953,917	5.3	
Ore and Concentrates	130,770	135,584	3.7	
Gravel, Sand and Stone	454,286	471,916	3.9	
Salt	22,332	22,969	2.9	
Lumber and Forest Products	891,984	917,951	2.9	
Petroleum and Petroleum Products	468,081	492,396	5.2	
Sugar, Syrup, Glucose & Molasses	63,991	67,625	5.7	
Iron and Steel	420,199	442,844	5.4	
Machinery & Boilers	45,832	49,912	8.9	
Cement	119,401	122,684	2.7	
Brick and Clay Products	133,140	137,473	3.3	
Lime and Plaster	52,267	53,457	2.3	
Agric. Implements & Vehicles, other than Automobiles	28,923	31,418	8.6	
Automobiles, Trucks & Parts	234,600	300,622	28.1	
Fertilizers, All Kinds	177,521	177,532		
Paper, Paperboard & Prepared Roofing	98,253	102,872	4.7	
Chemicals and Explosives	42,308	46,087	8.9	
Canned Goods—All Canned Food Products (includes Catsup, Jams, Jellies, Olives, Pickles, Preserves, etc.)	39,358	38,666		1.8
Total All Commodities Listed	7,674,506	8,048,075	4.9	

ANTAGONISTIC AND UNFAVORABLE LEGISLATION affecting railroads, passed by the law-making bodies of this country may be charged to the neglect of the railroads to obtain proper representation in such bodies, according to Harold Van Orman, lieutenant-governor of Indiana, in an address at the annual meeting of the Traffic Club of St. Louis, Mo., on December 12. Mr. Van Orman devoted most of his talk to friendship and that part that business should play in politics.

"It is to the interest of all men interested in traffic to send their own representatives to the legislative bodies. The railroads should have men in the Senate and in the House of Representatives, both of the United States and of the states in which they operate, to fight to the last ditch, if necessary, anything against the well-being of the roads."

Books & Letters

Books and Articles of Special Interest to Railroaders

(Compiled by Elizabeth Cullen, Reference Librarian, Bureau of Railway Economics, Washington, D. C.)

Books and Pamphlets

The Railway Policy of South Africa, by S. Herbert Frankel. A carefully documented analysis of the effects of railway rates, finance and management on the economic development of the Union of South Africa. 367 p. Pub. by Hortors Limited, Johannesburg, South Africa.

Railroad Regulation Since 1920, by D. Philip Locklin. Stating in the preface that this book "is primarily descriptive and one need not look for any 'solution' of the railroad problem in its pages" the author outlines the background of the Transportation Act of 1920 and then discusses rate regulation, regulation of service, intercorporate relations, financial regulation, settlement of labor disputes, valuation, depreciation accounting, and "Some important rate controversies" i.e. transcontinental and lake cargo rates. Dr. Locklin's style has an agreeable amount of "life" in it. 211 p. Chicago & New York, A. W. Shaw & Co. $2.50.

Periodical Articles

Rails to the Colorado Golcondas, by John Leeds Kerr. A brief history of railroads in Colorado. Barron's, December 31, 1928, p. 18-19.

Comfort Versus Speed and Cost. A different point of view about modern passenger trains, steamers, and hotels. Vogue, January 5, 1929, p. 61.

A Communication

Car Truck Action in Curves

CHICAGO, ILL.

TO THE EDITOR:

Referring to T. H. Symington's article on "Freight Car Truck Action in Curves," page 1137, December 8 issue of the *Railway Age,* and to the statement appearing at the bottom of the page, "Barber lateral motion device when applied apparently caused no change in derailing tendency."

In considering the lateral motion device in connection with Mr. Symington's experiments, there are a few facts not mentioned in his article. The body of the car used was made rigid by use of special construction not found in a standard freight car. The ordinary type of freight car would be found more or less flexible. The speed used was too slow to derive material benefit from the lateral motion device and the track conditions were such that no locomotive could negotiate it without derailment.

Observation has shown that a loaded rigid or standard A. R. A. truck in service on a moderately poor track will hammer the back of the journal boxes against the hub of the wheels while a Barber lateral motion truck, on the same kind of a car under exactly the same conditions, will not push the journal box against the wheel hub. Recording mechanism, as well as observation, has shown that the truck moves laterally under the car without moving the truck bolster, car body and load, thus greatly lessening the wheel flange pressure, and consequently greatly reducing the tendency toward derailment. The recording mechanism charts, above mentioned, have shown such accurate diagrams that the rail joints could be counted from them. Removing lateral motion or the swing hangers from a passenger car and then operating it will soon show that the lateral motion device is a necessity.

F. L. BARBER, *Secretary,*
Standard Car Truck Company.

Looking Backward

Fifty Years Ago

A joint committee representing more than 50 of the larger railroads in the East and West took action at New York on December 31 to discontinue the practice of issuing passes to shippers for the purpose of securing either freight or passenger business.—*Railroad Gazette,* January 10, 1879.

One remarkable feature of the western railway situation at present is the movement of so many lines to secure a share of Colorado business. Three great trunk lines, the Union Pacific, the Kansas Pacific [now part of the Union Pacific] and the Atchison, Topeka & Santa Fe, run their trains thither, and two others, the Burlington & Missouri River in Nebraska [now part of the Chicago, Burlington & Quincy] and the Central Branch Union Pacific [now part of the Missouri Pacific] have started to build across the 400 miles of plains.—*Railway Age,* January 9, 1879.

The United States Supreme Court has dismissed the suit brought by the Government in the Credit Mobilier case to recover certain money said to have been unlawfully paid under contracts for building the Union Pacific. In hearings before a Congressional investigating committee the profit to the stockholders of the construction company, the Credit Mobilier, many of whom were also stockholders of the Union Pacific, was variously estimated at from $20,000,000 to $42,000,000. The court held that the government could not maintain an action for recovery of money, even though it were fraudulently given, as long as the security of the United States bonds or the rights under the charter were not impaired.—*Railway Age,* January 9, 1879.

Twenty-Five Years Ago

The latest report of the Illinois Railroad Commission shows that there are only 29 miles of iron rails remaining in the tracks of the railroads in that state, against 11,197 miles of steel rails in all main line tracks.—*Railway Age,* January 15, 1904.

The first dining car service to be established on a Mexican railroad will be inaugurated over the National of Mexico between Laredo, Tex., and Mexico City, D. F. This will be an extension of the service which has been successfully operated on the International & Great Northern for the past year.—*Railway Age,* January 15, 1904.

In unfriendly reciprocity for the rule requiring shippers or consignees to pay the moderate charge of $1 per day for detention of freight cars above the free time allowed for unloading them, certain organizations of shippers are supporting a bill in Congress which proposes to compel railways to provide shippers with cars within five days from application, under penalty of $10 per car for each day's delay, and also to move loaded cars at a rate of not less than 50 miles a day under a similar penalty.—*Railway Age,* January 15, 1904.

Ten Years Ago

For the second time since the construction of the railway system of the United States was undertaken in 1831, more miles of main lines have been abandoned in a year than have been built. In 1918, 1,183 miles were abandoned, and 722 miles were constructed. A similar condition existed in 1917.—*Railway Age,* January 3, 1919.

Approximately 220,000 railroad men, or 12 out of every 100 employed on the railroads in the United States, responded to their country's call during the World war. The railroads of Canada, which bore the burden of war much longer than this country, contributed approximately 34,000 men to the conflict. The Pennsylvania leads individual roads with 24,487 in service at the conclusion of hostilities.—*Railway Age,* January 3, 1919.

Odds and Ends of Railroading

Another Railway Flyer

To Clyde W. Wallace, stores department, Southern Pacific, goes the honor of being the first railway man to engage in a transcontinental air race. Wallace was a mechanic on one of the Class B planes in the recent New York-Los Angeles air derby.

Short Station Names

Additions continue to come in to the list of two-letter station names originally compiled by the Railway Gazette (London) and supplemented by this department. Among the new arrivals are Au, in Switzerland, Re, on the Centovalli line in Northern Italy, and Ib, on the Bengal-Naypur line in India.

The Boy Tenor

Homer A. Bernhardt, record clerk in the office of the chief engineer, Southern, Lines West, at Cincinnati is another railroader who is attaining fame for musical prowess. Homer not only broadcasts regularly from various radio stations, but has made several phonograph records for a nationally-known company.

Another Good Job Gone

The trainmaster at Amarillo has just hired a boomer brakeman. While the new man was in the Harvey House eating his lunch, he heard a freight train passing, and counted the cars in the train while he waited for his food. After counting the one hundred and twentieth and last car, he turned to his neighbor and said, "Good grief, they hired me for the grape rush and there it goes."—Sante Fe Magazine.

Does Railroad Consolidation Legislation Need the Feminine Touch?

Railroads desiring to effect unifications, consolidations, mergers or other forms of what the Transportation Act may be construed to permit under the term "acquisitions of control," have not always found sympathetic listeners to their plans among the members of the Interstate Commerce Commission organization. However, the commission may perhaps be said to have gone as far as possible in an effort to insure sympathetic treatment when it assigned to its lady examiner, Miss G. M. Eddy, the case in which Mrs. Sara Edenborn, as president and owner of the stock of the Louisiana Railway & Navigation Company, is the central figure in a plan by which it is proposed that control of that company and the Louisiana & Arkansas be transferred and combined in a new Louisiana & Arkansas Railway Company, of Delaware. Miss Eddy has submitted a proposed report recommending that the commission approve the plan.

A Maniac's Prank

Seizing control of a signal tower at the intersection of the Southern Pacific and International-Great Northern tracks in Houston recently, a madman turned rail traffic topsy-turvy by throwing block signals with all the recklessness of a boy experimenting with a Christmas toy. Luckily, the plant was interlocked and there were no collisions, but it took some time for dispatchers to untangle the passenger and freight trains after the self-appointed traffic director had been relieved of his job by two policemen.

Mounting the tower with a pistol in one hand, the maniac threatened the towerman, who fled. Then he took charge, pulling levers in rapid order with no regard for rules. The towerman ran to a police station and summoned aid. Two officers climbed the tower with drawn revolvers and engaged the man in conversation until they were able to get near enough to subdue him.

Then began the work of straightening out the traffic snarl in the yards. Although police did not divulge his name, the demented man was reported to be a substantial resident of Houston who is subject to occasional spells of madness and who once worked in the signal tower which he raided.

Hot After the Hot Box

It recently took a vice-president to tell the fellows of one railroad what was causing so many hot boxes on their section of the line. It had gotten to be notorious that every train of cars that lay on a certain siding near the bend of a river gave trouble enroute after such a stop. No amount of investigation seemed productive of a solution, and since every hot box costs an average of $25, these lay-overs were rather expensive. The difficulties were seasonal inasmuch as fine weather or cold weather produced many hot boxes. The matter actually became a topic of conversation at a conference of executives. "Let's see that on the map," said the mystery buster—and after scanning the field "Well, I thought so. That particular bend in the river is the neighborhood where I was brought up, and as boys we used to swim and skate thereabouts. Oily waste from the boxes was ideal for starting our fires. I guess the new generation of boys in that section hasn't changed—and they don't know half the damage they're doing either!"—Wall Street Journal.

Levi Hutton Passes On

The bellringer on old 109 is gone. But old 109's bell still is performing a faithful duty at a half million dollar institution which remains today as a monument to the memory of its old ringer. The bellringer was Levi W. Hutton and 109 was an early-day locomotive on the Northern Pacific. Mr. Hutton died recently at Spokane, Wash., after a few days' illness.

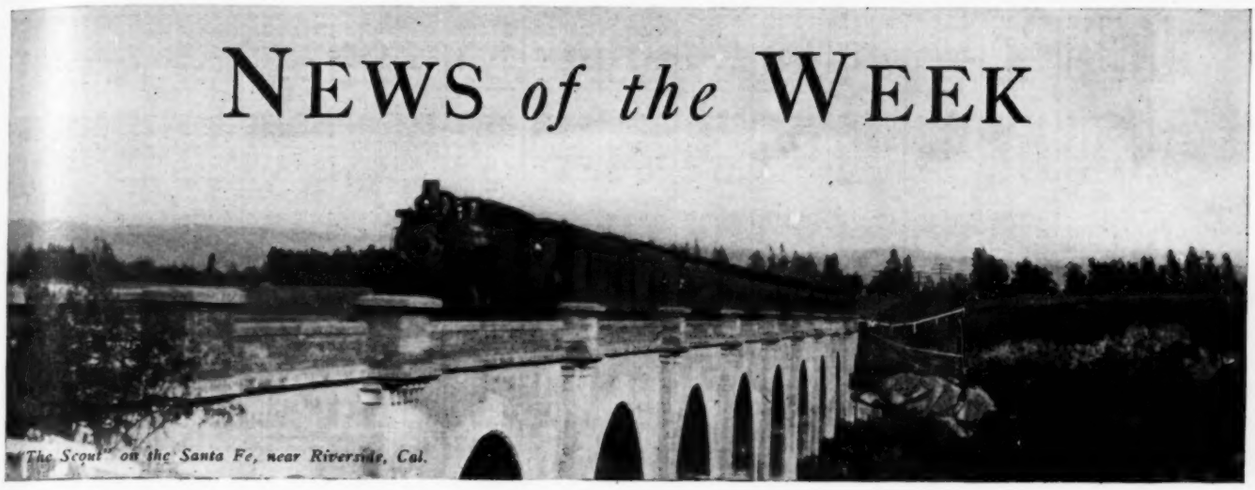
Northern Pacific employees all over the system know the romantic story of Levi Hutton's experiences. Left an orphan at the age of six, he lived with an uncle at Batavia, Iowa, until he was 18 years old, when he went west to Portland. In 1884, he took a job as fireman on engine No. 109 on the Northern Pacific at Missoula, Mont. Two and one-half years later he was promoted to engineer, remaining in that capacity for 20 years. Then he became interested in the Hercules Mine, which was the joke of the Coeur d'Alenes. For 10 years the mine paid nothing and it meant continued assessments on Mr. Hutton and his associates, to whom he had given small interests. Mr. Hutton, after finishing his run, would go into the mine and work a shift to keep up his end. His associates also worked in the mine.

In 1901 ore was struck. It was so rich that they were able to carry it out on their backs to get enough money to install machinery. One of the associates in 1905 sold his interest of 1/256th for $15,626. Mr. Hutton realized more than $1,000,000 from his interest, and although investments doubled during his lifetime he gave more than half of it away.

Himself an orphan, Mr. Hutton, after quitting his job with the Northern Pacific, went to Spokane, determined to make life happier for orphans. He established there a 240-acre institution with adequate buildings, known as the Hutton settlement for orphans. Since 1906, hundreds of orphans have been resident at this institution, where education, outdoor work and play are provided. He has spent more than $500,000 and his will provides amply for the institution in the future.

In 1919, Mr. Hutton made his lifetime's only request for assistance. He asked the Northern Pacific to give him the bell from old No. 109, which he proposed to mount in the Hutton settlement administration building. Eighteen months' search disclosed the bell, then in use on a logging locomotive. It was recovered, engraved in script, and, in suitable ceremonies attended by Mr. Hutton, it was formally presented September 17, 1921, and mounted according to his request. The bell today still is in service at the Hutton settlement.

NEWS *of the* WEEK



"The Scout" on the Santa Fe, near Riverside, Cal.

WILLIAM P. ROBINSON, chairman of the Moffat Tunnel Commission, died at Denver, Colo., on January 1, following an operation for diabetes.

JOHN F. MURRAY, of Brooklyn, N. Y., has been appointed by the Governor of New York as member of the New York Port Authority, succeeding H. K. Twitchell, deceased.

WILLIAM G. FALLON of New York City has been selected by the Governor of New York to be chairman of the Transit commission (New York City) in place of John F. Gilchrist, resigned.

B. M. RICHARDSON, on January 1, became chairman of the Iowa Board of Railroad Commissioners, succeeding Charles Webster who remains as a member of the board.

THE CAR FOREMEN'S ASSOCIATION OF CHICAGO will hold its next meeting at the Great Northern hotel, Chicago, on Monday evening, January 14. The discussion will be on the American Railway Association Interchange Rules.

THE AMERICAN SOCIETY FOR TESTING MATERIALS will hold its next annual meeting at the Chalfonte-Haddon Hall at Atlantic City, N. J., on June 24-28, thus repeating the arrangements which were so successful for the 1928 meeting.

PROFESSOR ARTHUR J. WOOD, head of the department of mechanical engineering, Pennsylvania State College, has been elected president of the American Society of Refrigerating Engineers for 1929.

THE INTERSTATE COMMERCE COMMISSION has assigned its investigation of the use of private passenger cars for oral argument at Washington on February 19, on the proposed report by Commissioner McManamy.

THE CANADIAN RAILWAY CLUB will hold its next meeting on Monday evening, January 14, at the Windsor Hotel, Montreal. A. A. Gardiner, general passenger agent of the Canadian National, will speak on the relationship of steamship to railroad transportation.

THIRTY-SIX EMPLOYEES of the Seaboard Air Line, who have served the company for 50 years or more, have received service medals, presented by President L. R. Powell, Jr., on December 28. Nineteen of these employees—13 white and six colored—were present at impressive ceremonies in the office of the company at Norfolk, Va.

THE SUPREME COURT OF THE UNITED STATES, in a decision handed down on January 2, affirmed the decree of the district court for the northern district of Oklahoma granting a permanent injunction against an order of the Oklahoma Corporation Commission which had attempted to restrain the St. Louis-San Francisco from moving its shops and division point from Sapulpa to West Tulsa.

THE CORNER STONE of the new general office building for the Southern Railway in Washington, at Fifteenth and K streets, was laid on December 20 with Masonic ceremonies. The trowel and gavel used by George Washington in 1793 were used. The building, designed to be one of the finest in the city, is to take the place of the company's present building, which has been bought by the federal government.

A SUB-COMMITTEE OF THE SENATE COMMITTEE ON INTERSTATE COMMERCE on January 9 held a hearing on some protests which have been made by representatives of railroad labor organizations against confirmation of the President's reappointment of Pat M. Neff as a member of the United States Board of Mediation, on the ground that he is not qualified for the kind of work involved and has delayed the settlement of cases. Senator Mayfield of Texas also appeared in opposition to the confirmation.

THE AMERICAN SOCIETY OF CIVIL ENGINEERS will hold its 76th annual meeting at the Engineering Societies building, New York, January 16, 17 and 18. In the program prepared, the first two days will be occupied by the business of the society and the presentation of reports, while the third day will be occupied by a boat excursion for inspection of the new Hudson River bridge and other bridges in the vicinity of New York. On Saturday morning, following the close of the convention, the members of the society will make an inspection of the subway construction work now under way in New York City.

Air Mail to West Indies

The "Pan American Airways" on Wednesday, January 9, began regular operation of airplanes between Florida and Cuba, Porto Rico, Haiti, Santa Domingo and Nassau. The Florida terminus is Miami whence four planes started on Wednesday morning Postmaster General Harry S. New was a passenger on one of them.

Motor Transport Division Will Meet in St. Louis

The Motor Transport Division of the American Railway Association will hold its first 1929 meeting at the Hotel Jefferson, St. Louis, on Feb. 26-March 1. On the last day of the session representatives of the automotive industry and other interested persons will be invited to attend.

New Express Terminal in New York City

The American Railway Express has moved its New England freight terminal facilities from the Grand Central Terminal, 42d street, New York City, to a new building at the terminus of the New York, New Haven & Hartford in Bronx borough, 132nd Street, where all of the express merchandise traffic over this road is now dealt with. The new building is 760 ft. by 100 ft. with large platforms, accommodating 74 wagons at one time. The New Haven operates into New York, daily except Sunday, four special express trains, and four outward. The merchandise handled at this station averages about 50,000 pieces a day.

Baltimore & Ohio Employees to Confer at Baltimore

Representatives of the 14 brotherhoods of employees on the Baltimore & Ohio are to hold a general conference at Johns Hopkins University, Baltimore, on Satur-

(*Continued on page 168*)

Revenues and Expenses of Railways

MONTH OF NOVEMBER AND ELEVEN MONTHS OF CALENDAR YEAR 1928

Name of road		Av. mileage operated during period.	Operating revenues: Freight.	Passenger.	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures.	Maintenance of Equipment.	Traffic.	Transportation.	General.	Total.	Operating ratio.	Net from railway operation.	Operating income (or loss).	Net ry. operating income.	Net ry. operating income, 1927.
Akron, Canton & Youngstown	Nov.	171	$304,355	$150	$311,016	$56,964	$25,182	$12,603	$81,961	$15,344	$192,054	61.8	$118,962	$103,514	$83,518	$37,899
	11 mos.	171	3,151,026	2,477	3,263,593	598,530	322,334	140,154	849,508	156,011	2,064,049	63.2	1,199,544	1,042,349	693,117	543,433
Atchison, Topeka & Santa Fe	Nov.	9,430	13,810,069	2,384,874	17,884,377	2,338,252	3,323,371	416,867	4,833,262	455,465	11,295,017	63.2	6,589,360	5,631,870	5,735,282	6,075,871
	11 mos.	9,428	141,626,025	31,818,718	189,400,013	32,515,214	36,655,388	4,415,734	54,232,947	4,570,499	131,721,942	69.5	57,678,071	42,791,715	42,720,644	43,353,645
Gulf, Colorado & Santa Fe	Nov.	1,944	2,348,541	209,285	2,718,147	252,130	429,907	57,369	756,807	72,475	1,525,288	56.1	1,192,859	1,010,501	904,644	900,669
	11 mos.	1,944	21,785,321	2,180,417	25,494,065	4,150,741	4,925,577	614,770	8,074,028	781,110	18,298,101	71.8	7,195,964	5,999,682	4,620,641	5,556,424
Panhandle & Santa Fe	Nov.	1,024	1,061,367	109,215	1,246,985	87,626	210,389	12,959	326,647	27,726	666,352	48.6	640,633	560,623	489,603	398,756
	11 mos.	1,023	10,021,086	1,181,959	12,051,042	2,578,428	2,336,458	134,454	3,504,655	304,513	8,606,869	71.4	3,444,173	2,981,237	2,063,603	2,442,491
Atlanta & West Point	Nov.	93	168,587	50,299	256,800	29,987	40,886	12,774	90,506	14,727	194,078	75.6	62,725	43,590	26,948	32,468
	11 mos.	93	1,832,266	630,063	2,823,616	325,884	489,876	138,929	1,010,963	148,360	2,165,989	76.7	657,627	488,226	312,685	370,553
Western of Alabama	Nov.	133	182,950	53,080	266,562	61,624	51,934	12,707	88,185	19,826	252,749	87.3	33,813	15,034	15,621	39,536
	11 mos.	133	2,056,371	621,506	2,973,801	412,758	549,878	137,560	901,129	157,799	2,202,668	74.1	771,133	565,103	659,103	537,782
Atlanta, Birmingham & Coast	Nov.	639	338,983	22,279	405,215	88,181	78,594	28,504	154,726	20,995	381,176	84.1	24,039	9,032	—5,939	—21,796
	11 mos.	639	3,647,969	308,985	4,407,252	961,915	894,072	318,733	1,731,376	209,206	4,232,487	96.0	174,765	8,817	—144,745	—42,485
Atlantic Coast Line	Nov.	5,127	4,617,776	755,612	5,943,509	809,193	1,163,128	160,678	2,036,839	165,674	4,364,047	73.4	1,579,462	1,027,135	1,156,292	607,332
	11 mos.	5,114	47,436,747	12,081,741	65,130,626	10,243,073	13,745,869	1,922,389	23,255,094	1,923,810	51,634,149	79.3	13,496,477	8,276,891	8,609,271	9,672,169
Charleston & Western Carolina	Nov.	342	247,158	10,278	268,817	29,002	37,672	7,159	99,469	7,099	180,330	67.1	88,487	70,980	64,045	60,021
	11 mos.	342	2,771,978	138,588	3,023,081	562,273	484,963	79,935	1,085,479	78,946	2,291,303	75.8	731,778	510,408	483,919	492,268
Baltimore & Ohio	Nov.	5,637	18,206,598	1,661,431	21,249,883	2,210,554	3,949,346	451,847	7,213,251	631,292	14,616,702	68.8	6,633,181	5,401,192	5,119,256	2,737,183
	11 mos.	5,637	181,800,297	21,769,843	218,004,498	25,405,061	43,677,498	5,245,389	75,502,919	7,300,520	159,091,591	73.0	58,912,907	48,343,570	45,695,035	43,640,717
Baltimore & Ohio Chicago Term.	Nov.	87	.....	.....	345,074	17,602	34,326	2,139	173,826	16,105	241,285	69.9	103,789	36,248	140,840	110,349
	11 mos.	87	.....	.....	4,049,312	465,997	450,102	26,923	1,950,814	178,984	3,100,836	76.6	948,476	260,517	1,313,885	1,124,503
Staten Island Rapid Transit	Nov.	23	130,594	114,160	259,344	19,303	15,866	1,948	108,641	15,184	160,942	62.1	98,402	88,402	49,192	31,777
	11 mos.	23	1,246,612	1,388,575	2,885,228	339,506	212,131	23,460	1,186,665	176,802	1,938,564	67.2	946,664	737,956	326,935	330,303
Bangor & Aroostook	Nov.	613	518,988	36,416	582,688	105,860	116,768	5,427	148,875	27,479	407,311	69.9	175,377	127,083	149,423	159,704
	11 mos.	613	5,736,735	582,124	6,607,502	1,211,245	1,220,011	65,297	1,638,082	284,300	4,454,871	67.4	2,152,631	1,617,553	1,799,494	1,973,162
Belt Ry. Co. of Chicago	Nov.	41	.....	.....	676,872	55,925	82,235	3,549	319,672	28,112	489,493	72.3	187,379	107,643	182,379	144,364
	11 mos.	41	.....	.....	7,516,689	724,749	770,371	41,534	3,409,924	143,208	5,089,786	67.7	2,426,903	1,830,813	1,623,577	1,567,055
Bessemer & Lake Erie	Nov.	224	1,264,555	7,624	1,291,174	71,867	311,615	13,291	319,279	33,877	735,431	57.0	555,743	470,918	517,771	146,576
	11 mos.	224	14,631,710	105,544	14,946,653	1,175,599	3,482,267	159,214	3,474,380	375,172	8,608,455	57.6	6,338,198	5,428,132	5,504,737	3,708,856
Bingham & Garfield	Nov.	33	41,069	.....	42,578	10,993	3,707	1,289	10,679	4,378	31,162	73.2	11,416	2,920	20,355	16,575
	11 mos.	33	425,338	40	438,403	97,085	77,408	15,525	111,101	48,140	350,600	80.0	87,803	5,072	192,462	178,916
Boston & Maine	Nov.	2,112	4,552,843	1,215,825	6,521,908	1,159,600	1,090,098	82,242	2,324,056	198,619	4,871,832	74.7	1,650,076	1,206,992	968,157	—125,607
	11 mos.	2,112	46,389,202	15,584,455	70,336,843	11,483,930	12,353,952	912,021	25,298,216	2,416,722	52,650,926	74.9	17,685,917	14,156,307	11,893,954	10,346,946
Brooklyn Eastern Dist. Terminal	Nov.	9	121,021	.....	124,709	10,531	15,931	534	42,653	7,009	76,658	61.4	48,051	40,810	40,810	37,731
	11 mos.	9	1,307,345	.....	1,353,496	101,420	151,438	5,922	483,974	81,785	824,539	60.9	528,957	438,448	439,408	400,856
Buffalo & Susquehanna	Nov.	253	137,874	906	148,540	28,324	46,678	2,490	47,539	7,706	132,737	89.4	15,803	13,803	37,464	18,394
	11 mos.	253	1,371,965	12,886	1,471,434	300,270	470,784	21,092	464,751	82,824	1,339,623	91.0	131,811	109,811	268,696	135,536
Buffalo, Rochester & Pittsburgh	Nov.	601	1,289,395	67,401	1,405,167	167,781	397,315	29,800	526,326	44,265	1,160,665	82.6	244,502	194,465	229,626	210,382
	11 mos.	601	14,226,456	835,231	15,597,580	2,019,969	3,944,260	326,304	5,894,490	457,211	12,658,733	81.2	2,938,847	2,468,642	2,616,193	1,706,429
Canadian Pacific Lines in Maine	Nov.	233	177,490	25,403	215,869	47,165	40,052	6,562	97,272	4,354	195,405	90.5	20,464	3,464	—19,910	—83,239
	11 mos.	233	1,759,014	320,800	2,227,671	637,525	434,771	64,464	992,283	47,020	2,176,063	97.6	51,608	—108,392	—323,743	—310,124
Canadian Pacific Lines in Vermont	Nov.	85	116,150	24,575	162,803	29,685	25,378	1,907	92,026	1,910	163,118	100.2	—315	—515	—35,936	—36,075
	11 mos.	85	1,208,436	421,809	1,869,731	1,051,596	368,647	19,286	1,077,105	21,173	2,533,580	135.5	—663,849	—712,549	—1,089,523	3,151
Central of Georgia	Nov.	1,911	1,667,801	249,226	2,149,364	260,445	359,860	77,919	766,887	89,227	1,563,778	72.8	585,586	443,750	481,829	370,879
	11 mos.	1,911	17,505,602	3,433,991	23,136,155	2,930,100	4,083,769	785,170	8,757,810	1,015,301	17,686,770	76.4	5,449,385	4,018,968	4,081,745	4,808,466
Central New Jersey	Nov.	690	4,102,333	632,136	5,032,939	519,670	1,099,133	50,323	1,823,681	138,774	3,655,784	72.6	1,377,155	960,298	845,263	741,111
	11 mos.	690	41,881,846	8,174,822	53,346,536	5,374,394	10,976,084	597,985	19,742,255	1,450,693	38,409,399	72.0	14,937,137	10,202,733	8,924,175	9,636,716
Central Vermont	Nov.	412	566,576	70,828	705,592	141,947	103,569	16,872	293,584	22,838	580,787	82.3	124,805	109,984	89,814	—419,355
	11 mos.	403	5,428,158	777,615	6,918,208	3,379,749	1,059,137	180,154	2,915,141	249,939	7,795,096	112.7	—876,888	—1,029,255	—1,213,967	711,268
Chesapeake & Ohio	Nov.	2,729	9,927,635	495,345	10,838,891	1,319,615	2,612,751	147,895	2,787,222	268,713	7,161,008	66.1	3,677,883	2,757,642	2,902,827	1,977,966
	11 mos.	2,722	103,693,524	6,492,673	114,673,584	15,816,069	26,282,423	1,476,166	30,060,334	3,011,118	76,956,105	67.1	37,717,479	30,345,111	32,669,496	34,353,457
Chicago & Alton	Nov.	1,028	1,606,836	429,145	2,277,280	336,561	495,839	77,890	899,705	29,392	1,850,639	81.3	426,641	320,713	164,956	91,342
	11 mos.	1,028	18,493,133	5,112,129	26,153,495	3,389,538	5,679,522	873,597	9,879,017	686,331	20,622,752	78.9	5,530,743	4,367,026	2,393,442	2,286,905
Chicago & Eastern Illinois	Nov.	945	1,751,054	252,013	2,191,082	218,681	414,993	83,921	788,018	66,499	1,580,994	72.2	610,088	459,152	326,445	188,072
	11 mos.	945	17,578,712	3,276,285	22,759,967	2,734,177	4,582,814	923,136	8,759,412	749,842	17,901,510	78.7	4,858,457	3,431,879	1,891,804	2,089,918
Chicago & Illinois Midland	Nov.	133	234,411	6,343	247,337	42,868	47,514	17,470	66,164	17,474	191,356	77.4	55,981	47,546	50,109	43,492
	11 mos.	133	2,287,371	74,292	2,418,564	404,854	491,517	178,685	679,438	184,532	1,936,570	80.1	481,994	400,209	422,531	—596,868
Chicago & North Western	Nov.	8,463	8,523,280	1,685,105	11,593,496	2,069,367	2,368,644	236,831	4,504,431	378,234	9,615,049	82.9	1,978,447	1,201,396	963,348	1,079,531
	11 mos.	8,463	103,809,812	21,520,180	140,622,504	20,570,633	26,166,064	2,826,643	52,261,548	4,069,481	106,418,097	75.7	34,204,407	25,661,975	23,175,667	20,328,748
Chicago, Burlington & Quincy	Nov.	9,374	10,668,176	1,373,021	13,361,280	2,144,508	2,450,382	231,628	4,338,801	362,959	9,584,706	71.7	3,776,574	2,887,801	2,407,613	2,450,842
	11 mos.	9,375	116,998,656	18,142,447	149,834,943	23,327,451	24,581,302	3,027,843	48,534,760	4,039,664	104,316,935	69.6	45,518,008	35,065,593	30,807,823	27,469,333

Revenues and Expenses of Railways

	11 mos.	8,463	103,809,812	21,520,180	140,622,504	20,570,633	26,166,064	2,826,643	52,261,548	4,069,481	106,418,097	75.7	34,204,407	25,661,975	23,175,667	20,328,748	29
Chicago, Burlington & Quincy	Nov.	9,374	10,668,176	1,373,021	13,361,280	2,144,508	2,450,382	231,628	4,338,801	362,959	9,584,706	71.7	3,776,574	2,887,801	2,407,613	2,450,842	
	11 mos.	9,375	116,998,656	18,142,447	149,834,943	23,327,451	24,581,302	3,027,843	48,534,760	4,039,664	104,316,935	69.6	45,518,008	35,065,593	30,807,823	27,469,333	

Revenues and Expenses of Railways

MONTH OF NOVEMBER AND ELEVEN MONTHS OF CALENDAR YEAR 1928—CONTINUED

Name of road		Av. mileage operated during period.	Operating revenues: Freight.	Passenger.	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures.	Maintenance of Equipment.	Traffic.	Transportation.	General.	Total.	Operating ratio.	Net from railway operation.	Operating income (or loss).	Net ry. operating income.	Net ry. operating income, 1927.
Chicago Great Western	Nov.	1,495	$1,723,477	$207,299	$2,113,000	$290,405	$339,048	$75,357	$844,319	$54,546	$1,613,907	76.4	$499,093	$373,596	$202,166	$133,665
	11 mos.	1,495	18,434,536	2,672,032	22,957,685	3,090,160	4,072,209	900,031	9,177,495	622,021	17,989,101	78.4	4,968,584	3,979,102	2,268,504	1,885,501
Chicago, Indianapolis & Louisville	Nov.	647	1,200,418	157,354	1,497,711	159,887	309,098	37,444	552,205	39,809	1,110,408	74.1	387,303	311,877	188,941	103,783
	11 mos.	647	13,225,479	1,965,808	16,810,021	1,618,707	3,394,542	446,907	6,112,376	402,190	12,114,996	72.1	4,695,025	3,763,024	2,436,351	2,741,259
Chicago, Mil., St. Paul & Pac.	Nov.	11,251	11,005,554	1,294,269	13,693,718	1,895,004	2,577,045	329,939	4,785,232	357,415	9,998,761	73.0	3,694,957	2,751,435	2,312,593	2,025,382
	11 mos.	11,251	126,120,333	16,542,464	157,396,582	26,075,422	27,505,973	3,394,735	54,040,862	3,965,010	115,801,280	73.6	41,595,302	32,435,934	26,902,218	14,088,606
Chicago River & Indiana	Nov.	20	.....	.....	568,013	55,178	51,717	926	207,771	13,361	328,953	57.9	239,060	192,425	288,066	273,476
	11 mos.	20	.....	.....	6,295,774	645,755	642,342	8,656	2,287,253	189,708	3,773,714	59.9	2,522,060	2,041,912	3,097,461	2,993,360
Chicago, Rock Island & Pacific	Nov.	7,564	8,487,354	1,469,747	11,016,363	1,499,522	2,184,003	252,985	3,874,290	351,748	8,155,971	74.0	2,860,392	2,159,086	1,710,325	2,133,772
	11 mos.	7,566	95,025,391	17,581,768	123,331,484	16,923,858	23,844,218	2,659,447	43,784,682	3,716,211	90,886,097	73.7	32,445,387	25,068,202	20,494,945	19,700,192
Chicago, Rock Island & Gulf	Nov.	516	546,972	68,181	682,532	93,707	38,039	19,283	194,772	17,455	363,265	53.2	319,267	289,706	269,971	221,530
	11 mos.	516	5,065,081	700,517	6,290,652	742,642	667,090	223,450	2,184,928	192,762	4,003,741	63.6	2,286,911	1,999,567	1,722,094	1,337,888
Chic., St. Paul, Minn. & Omaha	Nov.	1,746	1,719,178	290,270	2,222,451	356,524	418,918	41,384	953,017	82,544	1,866,437	84.0	356,014	247,890	198,939	118,015
	11 mos.	1,746	18,988,627	3,845,443	24,881,257	4,361,161	4,608,398	447,184	10,445,229	860,040	20,814,593	83.7	4,066,664	2,795,792	2,065,056	2,570,238
Clinchfield Railroad	Nov.	309	571,192	12,653	595,613	47,607	134,053	21,663	119,177	16,145	338,506	56.8	257,107	167,075	303,243	230,954
	11 mos.	309	6,015,277	177,486	6,324,398	643,780	1,465,383	242,668	1,335,003	190,586	3,875,227	61.3	2,449,171	1,643,708	2,761,458	3,078,684
Colorado & Southern	Nov.	1,035	1,045,274	82,082	1,213,008	145,291	216,586	14,256	356,789	40,819	775,342	63.9	437,666	344,875	331,063	157,953
	11 mos.	1,041	9,202,981	1,116,855	11,242,961	1,845,070	2,120,259	162,526	3,838,260	462,123	8,460,413	75.3	2,782,548	2,016,071	1,797,140	1,315,133
Ft. Worth & Denver City	Nov.	696	943,418	160,681	1,175,816	85,871	141,923	21,824	304,041	37,327	596,933	50.8	578,883	495,887	489,793	367,478
	11 mos.	614	8,020,475	1,763,756	10,526,815	1,357,999	1,484,066	233,543	3,015,608	417,000	6,525,222	62.0	4,001,593	3,382,057	3,328,059	2,906,263
Wichita Valley	Nov.	271	175,643	11,141	198,375	44,360	7,438	54	44,017	2,062	96,629	48.7	101,746	91,199	64,902	103,472
	11 mos.	271	1,358,032	137,277	1,589,747	328,485	80,155	408	457,498	19,674	878,416	55.3	711,331	618,383	353,869	452,341
Columbus & Greenville	Nov.	167	156,078	22,869	188,544	33,743	19,940	3,628	60,211	10,822	128,279	68.0	60,265	52,094	33,518	29,339
	11 mos.	167	1,346,430	212,133	1,648,017	435,219	198,634	40,596	563,976	123,447	1,360,538	82.6	287,479	252,942	111,597	74,066
Conemaugh & Black Lick	Nov.	22	111,749	.....	194,752	16,118	30,033	788	100,418	3,598	150,955	77.5	43,797	42,797	32,444	—5,027
	11 mos.	22	965,556	.....	1,719,335	152,864	306,657	9,975	943,039	37,147	1,449,682	84.3	269,653	258,653	254,204	37,814
Delaware & Hudson	Nov.	881	3,193,321	213,833	3,689,785	375,925	824,833	53,842	1,321,680	187,002	2,794,136	75.7	895,649	545,649	571,295	445,998
	11 mos.	881	30,911,417	3,244,428	36,977,909	4,219,157	8,499,788	596,657	13,385,269	1,791,114	28,691,252	77.6	8,286,657	5,738,343	5,824,660	6,435,986
Delaware, Lackawanna & Western	Nov.	998	5,607,775	896,245	7,276,021	513,947	1,169,605	138,583	2,785,065	170,583	4,825,109	66.3	2,450,912	1,817,168	1,851,134	1,540,429
	11 mos.	998	54,768,346	10,995,029	74,345,028	7,431,856	12,666,511	1,525,164	29,065,804	1,977,393	53,235,543	71.6	21,109,485	15,018,284	15,383,909	16,193,746
Denver & Rio Grande Western	Nov.	2,562	2,611,718	219,241	3,044,957	431,683	490,273	57,518	919,529	84,022	2,001,086	65.7	1,043,871	843,796	816,351	747,360
	11 mos.	2,557	24,707,447	3,382,467	30,400,741	5,933,727	5,613,752	640,679	9,108,788	957,115	22,591,396	74.3	7,809,345	5,707,153	6,286,512	5,899,472
Denver & Salt Lake	Nov.	232	346,353	16,245	375,870	61,136	69,930	1,668	57,205	10,358	193,299	51.4	182,571	172,476	179,945	64,992
	11 mos.	236	3,214,867	234,992	3,652,234	782,039	817,393	20,915	630,346	117,109	2,336,708	64.0	1,315,526	1,217,398	1,294,823	544,682
Detroit & Mackinac	Nov.	300	121,830	8,877	139,346	31,673	28,963	2,648	52,406	5,731	118,269	84.9	21,077	10,653	11,667	—2,787
	11 mos.	307	1,335,744	129,487	1,580,764	476,437	284,246	22,301	495,322	64,059	1,304,439	82.5	276,325	155,945	188,142	281,535
Detroit & Toledo Shore Line	Nov.	50	408,828	.....	413,721	45,057	33,172	10,965	107,593	12,609	209,396	50.6	204,325	176,745	91,974	28,650
	11 mos.	50	4,391,834	.....	4,447,094	500,073	394,732	81,459	1,118,604	102,735	2,197,603	49.4	2,249,491	1,905,964	1,043,383	905,973
Detroit Terminal	Nov.	19	.....	.....	191,827	15,775	16,289	.....	98,739	4,680	135,483	70.6	56,344	29,731	30,416	—23,579
	11 mos.	19	.....	.....	2,152,346	208,365	163,384	30	936,253	44,290	1,352,322	62.8	800,024	565,047	579,192	417,495
Detroit, Toledo & Ironton	Nov.	495	1,066,786	3,194	1,095,980	129,187	161,371	11,387	281,031	28,183	609,327	55.6	486,653	403,399	313,240	—40,431
	11 mos.	495	9,743,607	40,675	9,989,545	1,306,577	1,692,859	134,991	2,869,941	310,106	6,293,160	63.0	3,696,385	3,024,673	2,265,857	582,184
Duluth & Iron Range	Nov.	275	296,655	6,203	348,616	68,449	104,817	1,710	118,344	18,870	312,190	89.6	36,426	6,843	10,421	—168,068
	11 mos.	275	5,637,264	53,164	6,479,393	1,030,207	1,169,316	18,789	1,615,005	224,442	4,057,586	62.6	2,421,807	1,965,072	1,993,422	1,694,022
Duluth, Missabe & Northern	Nov.	308	1,051,468	3,535	1,200,728	123,193	184,471	2,233	292,818	22,161	624,725	52.0	576,003	428,336	433,492	—287,890
	11 mos.	307	15,208,628	49,280	17,327,593	1,583,690	1,899,656	33,038	2,988,305	211,000	6,715,442	38.8	10,612,151	8,776,735	8,784,408	6,472,543
Duluth, Winnipeg & Pacific	Nov.	178	169,636	17,427	201,113	29,404	47,740	4,639	70,696	7,733	161,974	80.5	39,139	28,908	29,038	31,706
	11 mos.	178	2,089,153	166,977	2,374,285	437,353	529,922	52,651	816,552	84,588	1,943,920	81.9	430,365	309,632	294,332	338,883
Elgin, Joliet & Eastern	Nov.	460	1,779,022	4	1,952,590	236,614	375,788	13,950	675,018	50,989	1,352,300	69.3	600,290	466,050	366,464	103,859
	11 mos.	460	20,702,291	189	22,750,690	2,320,914	4,562,408	162,342	7,734,481	625,721	15,396,290	67.7	7,354,400	6,011,055	4,278,164	4,244,588
Erie Railroad	Nov.	2,047	8,059,024	765,499	9,617,175	1,047,903	2,149,574	189,400	3,758,780	301,354	7,480,445	77.8	2,136,730	1,751,144	1,624,629	454,593
	11 mos.	2,047	82,941,818	9,793,215	100,944,544	12,430,773	22,445,005	1,903,809	38,964,878	3,231,121	79,408,525	78.7	21,536,019	17,506,111	16,817,169	12,935,524
Chicago & Erie	Nov.	269	1,164,971	37,427	1,296,395	131,468	128,651	27,173	374,442	38,903	699,927	54.0	596,468	521,428	165,343	197,718
	11 mos.	269	12,068,516	526,621	13,659,542	1,804,474	1,609,481	280,169	3,946,644	440,314	8,073,329	59.1	5,586,213	4,936,566	1,605,569	768,953
New Jersey & New York	Nov.	45	30,928	94,410	130,677	15,503	18,737	2,175	69,695	3,703	109,812	84.0	20,865	16,901	—17,123	—34,635
	11 mos.	45	326,489	1,070,845	1,451,036	192,094	244,874	19,101	768,286	39,283	1,263,535	87.1	187,501	144,391	—222,935	—271,406
N. Y., Susquehanna & Western	Nov.	131	338,712	41,551	416,229	47,174	51,110	5,853	185,505	11,509	301,151	72.4	115,078	84,005	71,509	—18,801
	11 mos.	132	3,650,753	491,526	4,562,983	649,786	623,925	58,093	2,092,274	123,555	3,547,105	77.7	1,015,878	689,015	446,411	245,159
Evansville, Indianap. & Terre Haute	Nov.	146	128,989	3,146	137,921	25,306	18,029	2,134	70,753	6,607	122,829	89.1	15,092	10,257	—26,751	5,670
	11 mos.	146	1,494,789	40,749	1,598,231	228,012	227,818	24,980	629,974	66,806	1,227,065	76.8	371,166	318,909	—22,475	233,086
Florida East Coast	Nov.	855	553,545	243,355	917,283	197,820	181,521	33,056	281,090	44,440	761,481	83.0	155,802	8,009	—28,283	—179,060
	11 mos.	856	7,085,256	4,069,901	12,693,328	2,012,147	1,994,140	364,818	3,938,752	526,207	9,091,016	71.6	3,602,312	1,959,467	1,245,492	456,811

Revenues and Expenses of Railways

MONTH OF NOVEMBER AND ELEVEN MONTHS OF CALENDAR YEAR 1928—CONTINUED

Name of road		Av. mileage operated during period.	Operating revenues: Freight.	Passenger.	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures.	Maintenance of Equipment.	Traffic.	Transportation.	General.	Total.	Operating ratio.	Net from railway operation.	Operating income (or loss).	Net ry. operating income.	Net ry. operating income, 1927.
Fort Smith & Western	Nov.	249	$126,981	$10,595	$144,720	$26,643	$29,757	$5,990	$49,587	$6,621	$117,877	81.5	$26,843	$18,798	$10,647	$3,647
	11 mos.	249	1,230,667	110,395	1,416,212	263,354	301,589	66,535	484,030	75,693	1,181,550	83.4	234,662	178,131	45,971	18,908
Galveston Wharf	Nov.	13	.....	.....	236,564	38,207	4,761	10,838	39,866	4,761	112,627	47.6	123,937	98,937	98,950	24,545
	11 mos.	13	.....	.....	2,061,331	481,750	50,140	45,131	330,016	53,718	1,093,708	53.1	967,623	707,623	708,965	374,155
Georgia R. R.	Nov.	328	358,168	56,102	449,182	45,802	84,476	23,997	189,585	22,958	367,055	81.7	82,127	71,120	82,965	72,140
	11 mos.	328	3,835,549	868,587	4,845,093	524,479	927,777	257,530	2,062,746	257,276	4,027,788	83.1	817,305	699,989	844,402	997,903
Georgia & Florida	Nov.	445	103,775	10,054	123,195	24,389	20,400	8,625	53,635	8,522	114,909	93.3	8,286	—1,217	29	—662
	11 mos.	445	1,279,290	136,946	1,505,782	251,274	223,672	100,390	591,032	91,031	1,256,301	83.4	249,481	151,582	166,117	226,469
Grand Trunk Western	Nov.	345	1,445,587	160,036	1,695,952	166,822	363,906	41,384	584,244	61,228	1,223,734	72.2	472,218	374,757	212,966	165,567
	11 mos.	345	17,364,527	2,017,447	20,369,769	2,592,060	4,122,630	475,114	6,765,775	705,423	14,749,333	72.4	5,620,436	4,633,188	3,271,890	3,133,051
Atlantic & St. Lawrence	Nov.	166	168,557	22,936	208,956	35,306	35,182	5,575	88,946	7,915	174,592	83.5	34,364	19,450	—16,841	—92,671
	11 mos.	166	1,800,498	313,938	2,329,751	629,051	414,624	64,522	1,262,611	93,663	2,481,469	106.5	—151,718	—313,712	—939,205	—670,080
Chic., Det. & Canada Gr. Tr. Jct.	Nov.	59	275,634	2,467	371,536	8,354	15,054	4,875	105,838	4,100	138,204	37.2	233,332	217,022	187,500	75,053
	11 mos.	59	3,160,900	15,344	3,685,672	157,080	172,219	52,823	1,066,463	44,886	1,486,641	40.3	2,199,031	2,073,238	1,727,201	1,232,384
Detroit, Grand Haven & Mil.	Nov.	192	650,777	19,578	727,833	76,472	60,049	13,413	313,170	19,070	481,967	66.2	245,866	241,762	111,741	195
	11 mos.	192	7,751,863	280,665	8,652,029	1,158,687	692,344	149,456	3,172,601	212,608	5,369,172	62.1	3,282,857	3,194,722	1,816,924	1,394,202
Great Northern	Nov.	8,310	11,667,680	820,561	13,358,965	1,376,343	1,587,184	215,050	3,542,993	231,360	7,031,535	52.6	6,327,430	5,334,104	5,004,070	4,454,103
	11 mos.	8,255	97,106,279	10,530,542	117,913,957	17,010,072	17,198,257	2,612,454	36,063,363	2,592,938	76,274,955	64.7	41,639,002	32,157,385	30,347,522	27,362,389
Green Bay & Western	Nov.	234	164,952	3,718	174,009	33,468	25,064	6,849	66,720	2,920	135,010	77.5	38,999	28,999	23,115	—26,947
	11 mos.	234	1,516,623	54,065	1,646,036	283,690	232,197	63,389	623,171	30,941	1,233,345	74.9	412,691	314,470	259,957	185,494
Gulf & Ship Island	Nov.	307	207,781	26,973	254,764	58,000	54,639	5,569	96,817	7,892	225,557	88.5	29,207	—8,715	—25,411	—46,404
	11 mos.	307	2,413,394	401,543	3,059,224	686,313	596,755	59,423	1,127,988	88,815	2,593,445	84.8	465,779	149,718	—25,181	—330,388
Gulf, Mobile & Northern	Nov.	733	605,040	26,871	662,244	99,243	101,396	33,318	191,371	25,914	451,556	68.19	210,688	177,151	132,167	110,029
	11 mos.	733	6,298,813	335,324	6,925,209	1,201,544	1,045,823	352,948	2,082,957	303,650	4,990,381	72.06	1,934,828	1,595,064	1,194,033	1,133,037
Hocking Valley	Nov.	348	1,650,060	55,661	1,897,021	199,192	311,347	17,573	533,263	43,832	1,105,207	58.3	791,814	650,594	515,679	134,640
	11 mos.	348	16,886,755	659,651	19,334,785	2,129,433	3,564,024	185,201	5,382,885	497,063	11,758,406	60.8	7,576,379	6,201,421	5,176,057	4,847,852
Illinois Central	Nov.	5,037	10,157,598	1,539,395	12,595,637	1,502,176	2,983,238	248,281	4,506,402	350,234	9,669,311	76.8	2,926,326	2,086,678	2,089,828	1,374,188
	11 mos.	4,998	110,067,876	19,505,072	139,798,758	16,781,539	33,066,769	2,858,056	49,554,843	3,925,540	107,078,991	76.6	32,719,767	23,343,548	23,331,400	23,902,418
Yazoo & Mississippi Valley	Nov.	1,705	2,139,135	286,753	2,579,118	384,860	405,523	43,464	851,638	64,762	1,757,403	68.1	821,715	642,034	568,416	353,293
	11 mos.	1,708	19,751,258	3,190,938	24,470,566	4,287,001	4,529,762	499,523	9,052,986	710,254	19,142,022	78.2	5,328,544	3,482,259	2,698,310	1,541,096
Illinois Central System	Nov.	6,742	12,309,079	1,830,156	15,191,111	1,887,036	3,392,035	291,745	5,366,397	415,168	11,438,467	75.3	3,752,644	2,728,763	2,668,857	1,730,383
	11 mos.	6,707	129,944,726	22,740,552	164,439,484	21,068,540	37,656,416	3,357,579	58,728,037	4,637,354	126,402,666	76.9	38,036,818	26,762,750	26,095,221	25,496,792
Illinois Terminal	Nov.	473	392,881	134,055	552,907	68,201	99,638	21,078	195,455	42,291	425,294	76.92	127,613	105,080	63,741	100,982
	11 mos.	475	4,262,429	1,570,064	6,143,191	859,032	909,867	227,900	2,133,039	395,579	4,512,388	73.45	1,630,803	1,347,900	965,607	1,269,096
Kansas City, Mexico & Orient	Nov.	272	219,148	4,859	233,026	55,428	38,165	9,051	78,720	9,764	191,039	82.0	41,987	37,972	60,192	—83,729
	11 mos.	272	2,564,694	66,166	2,726,204	—5,446	523,137	96,583	874,422	107,605	1,595,252	58.5	1,130,952	1,062,952	1,226,184	43,087
Kansas City, Mex. & Orient of Tex.	Nov.	465	458,994	12,249	484,112	69,260	59,187	10,484	105,024	11,634	254,344	52.5	229,768	222,433	175,491	—30,645
	11 mos.	465	4,899,638	175,056	5,223,007	—240,455	861,866	106,787	1,395,490	128,553	2,243,176	42.9	2,980,431	2,809,802	2,203,530	303,333
Kansas City Southern	Nov.	784	1,304,169	90,682	1,563,775	195,369	276,612	62,074	453,989	82,270	1,068,880	68.4	494,895	439,768	394,827	253,399
	11 mos.	784	14,166,195	983,211	16,959,414	1,980,465	2,849,739	641,587	5,136,714	888,724	11,496,087	67.8	5,463,327	4,394,187	3,717,359	3,904,127
Texarkana & Ft. Smith	Nov.	81	246,403	7,205	278,266	24,854	22,480	7,134	59,114	12,309	128,158	46.1	150,108	137,947	109,638	73,969
	11 mos.	81	2,350,317	83,307	2,657,580	258,526	220,987	76,769	686,149	121,392	1,380,023	51.9	1,277,557	1,143,216	826,334	531,739
Kansas, Oklahoma & Gulf	Nov.	325	310,791	2,634	320,679	74,413	28,460	12,610	67,019	9,243	191,165	59.6	129,514	119,588	102,562	70,082
	11 mos.	326	2,870,061	33,484	2,962,980	727,259	285,535	124,193	708,587	109,942	1,844,340	62.2	1,118,640	1,002,298	832,060	325,993
Lake Superior & Ishpeming	Nov.	160	174,228	968	199,574	24,472	24,923	1,848	53,279	6,338	110,671	55.5	88,903	69,034	67,853	8,622
	11 mos.	160	2,128,883	15,774	2,460,287	402,705	286,142	7,165	569,265	94,292	1,359,342	55.3	1,100,945	843,960	805,309	721,469
Lake Terminal	Nov.	13	.....	.....	92,886	15,591	17,965	.....	52,450	1,792	87,798	94.5	5,088	657	579	—32,283
	11 mos.	13	.....	.....	1,049,842	168,938	211,910	.....	578,321	20,873	980,042	93.4	69,800	17,718	47,486	—100,268
Lehigh & Hudson River	Nov.	96	244,687	1,132	254,731	23,992	31,476	2,493	84,043	9,264	151,268	59.4	103,463	81,976	61,583	44,872
	11 mos.	96	2,449,551	16,636	2,582,391	269,508	367,073	27,898	921,237	107,955	1,693,671	65.6	888,720	717,230	489,051	584,667
Lehigh & New England	Nov.	216	462,167	1,081	469,920	36,793	92,282	5,100	154,322	17,921	306,390	65.2	163,530	142,651	133,766	145,862
	11 mos.	216	4,910,737	14,895	5,003,457	606,596	1,037,846	61,219	1,770,336	189,914	3,665,048	73.3	1,338,409	1,158,046	1,114,605	1,385,159
Lehigh Valley	Nov.	1,361	5,549,834	491,843	6,524,900	337,005	1,344,481	134,531	2,563,947	139,437	4,547,240	69.7	1,977,660	1,637,023	1,367,993	674,866
	11 mos.	1,363	54,937,850	6,406,091	66,306,944	6,161,806	13,243,565	1,493,041	26,571,395	1,585,973	49,410,321	74.5	16,896,623	13,470,900	11,602,082	9,277,477
Louisiana & Arkansas	Nov.	301	327,590	9,601	343,583	44,096	55,082	10,697	78,530	13,298	201,559	58.7	142,024	98,014	87,368	47,944
	11 mos.	301	3,359,042	111,989	3,553,712	509,288	593,561	136,061	893,198	122,576	2,251,487	63.4	1,302,225	945,483	808,662	399,044
Louisiana Ry. & Nav. Co.	Nov.	338	271,078	9,882	295,144	55,927	34,008	14,779	116,917	11,429	230,791	78.2	64,353	46,086	19,039	16,479
	11 mos.	337	2,884,390	117,209	3,138,134	650,763	373,221	146,476	1,205,496	120,712	2,477,681	79.0	660,453	423,756	132,109	—73,293
Louisiana Ry. & Nav. Co. of Tex.	Nov.	206	93,554	3,396	100,559	21,472	11,059	2,754	35,513	5,000	75,798	75.4	24,761	20,719	9,901	8,831
	11 mos.	206	881,325	40,519	962,034	256,849	156,221	33,984	420,895	60,678	928,495	96.5	33,539	—11,434	—148,080	—92,388
Louisville & Nashville	Nov.	5,077	9,239,151	1,247,817	11,199,818	1,818,384	2,514,338	267,461	3,839,932	345,161	8,831,570	78.9	2,368,248	1,700,612	1,744,554	1,422,164
	11 mos.	5,077	101,422,705	15,868,629	124,763,076	19,352,299	28,036,860	2,667,674	43,268,908	3,965,886	97,817,149	78.4	26,945,927	19,938,815	20,275,238	22,827,175

Name of road		Av. mileage operated during period.	Operating revenues: Freight.	Passenger.	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures.	Maintenance of Equipment.	Traffic.	Transportation.	General.	Total.	Operating ratio.	Net from railway operation.	Operating income (or loss).	Net ry. operating income.	Net ry. operating income, 1927.
Louisville, Henderson & St. Louis	Nov.	199	$202,177	$32,890	$251,227	$42,969	$51,469	$8,047	$102,542	$11,300	$217,900	86.7	$33,327	$25,263	$16,778	$40,377
	11 mos.	199	2,332,012	454,143	2,978,561	552,990	537,935	93,752	1,118,888	128,652	2,450,063	82.3	528,498	392,066	322,083	746,303
Maine Central	Nov.	1,122	1,178,920	200,167	1,527,008	215,888	309,906	13,789	600,624	48,561	1,188,647	77.8	338,361	225,306	197,406	160,690
	11 mos.	1,122	13,052,749	3,042,800	17,783,965	2,089,797	3,424,166	180,974	6,898,080	572,714	13,787,032	77.5	3,996,933	2,776,476	2,506,698	2,371,755
Midland Valley	Nov.	364	277,893	12,758	301,365	50,066	34,931	7,973	77,815	12,446	182,567	60.6	118,798	106,267	80,622	104,457
	11 mos.	364	3,167,712	168,442	3,437,608	515,849	386,085	86,060	844,741	140,345	1,965,088	57.2	1,472,520	1,310,312	1,017,591	1,048,238
Minneapolis & St. Louis	Nov.	1,627	1,038,027	68,117	1,180,714	103,368	233,792	35,013	536,576	44,456	952,777	80.7	227,937	147,984	83,689	110,168
	11 mos.	1,627	11,805,812	794,560	13,331,236	1,999,393	2,590,132	388,791	5,937,574	485,083	11,398,674	85.5	1,932,562	1,214,275	518,099	265,092
Minneapolis, St. Paul & S. S. Marie	Nov.	4,385	3,868,674	310,398	4,520,734	615,543	683,545	75,022	1,533,233	114,476	3,033,470	67.1	1,487,264	1,230,761	1,005,934	787,613
	11 mos.	4,385	38,535,682	4,603,633	46,641,704	6,487,647	8,058,378	882,357	16,755,554	1,296,256	33,697,253	72.2	12,944,451	10,188,683	8,447,235	8,386,900
Duluth, South Shore & Atlantic	Nov.	573	298,081	48,758	377,585	51,339	60,450	8,226	165,472	10,651	299,169	79.2	78,416	42,416	31,595	21,997
	11 mos.	577	3,621,244	646,514	4,681,660	862,334	746,034	86,637	1,964,804	120,386	3,821,187	81.6	860,473	494,447	320,433	518,583
Spokane International	Nov.	165	73,206	10,239	90,066	9,656	4,775	3,621	34,335	6,174	59,484	66.0	30,582	25,703	19,134	19,254
	11 mos.	165	914,120	116,779	1,108,355	174,274	96,652	39,026	354,397	65,594	746,163	67.3	362,192	302,261	220,292	225,440
Mississippi Central	Nov.	161	134,804	6,972	146,308	23,284	23,942	9,880	37,016	7,867	101,989	69.7	44,319	29,330	31,225	29,912
	11 mos.	161	1,428,180	83,325	1,563,939	242,094	250,223	104,844	412,170	87,332	1,096,578	70.1	467,361	361,203	357,789	346,004
Missouri & North Arkansas	Nov.	364	122,319	9,894	142,786	24,603	18,285	10,274	54,006	7,884	115,838	81.1	26,948	24,449	14,584	—13,838
	11 mos.	364	1,310,301	121,757	1,528,036	370,602	212,999	105,958	609,513	91,238	1,392,435	91.1	135,601	106,960	—20,835	—9,094
Missouri-Kansas-Texas Lines	Nov.	3,188	4,230,689	550,950	5,210,125	847,477	923,551	120,676	1,480,944	161,584	3,545,645	68.1	1,664,480	1,420,498	1,210,013	1,160,335
	11 mos.	3,188	41,393,769	6,167,303	51,639,617	7,067,685	9,391,926	1,262,756	15,406,150	2,264,910	35,562,423	68.9	16,077,194	13,206,443	11,105,317	10,891,699
Missouri Pacific	Nov.	7,460	9,413,789	1,027,220	11,357,620	2,026,955	1,931,114	295,391	3,803,268	387,444	8,397,120	73.9	2,960,500	2,318,439	1,865,089	1,794,149
	11 mos.	7,443	98,597,519	12,417,032	120,722,929	19,674,024	22,393,152	3,266,390	41,460,773	4,123,142	90,813,463	72.1	29,909,466	24,625,383	19,788,492	15,977,728
Gulf Coast Lines	Nov.	1,026	951,652	138,049	1,164,393	187,785	221,219	39,849	358,290	63,308	864,801	74.27	299,592	243,233	219,229	112,457
	11 mos.	1,023	11,329,952	1,496,516	13,569,787	2,302,276	2,378,088	452,872	3,989,329	660,477	9,734,965	71.74	3,834,822	3,299,990	2,687,787	2,048,645
International-Great Northern	Nov.	1,159	1,351,202	171,596	1,682,167	245,437	275,285	40,716	662,594	64,740	1,285,686	76.43	396,481	350,142	243,086	148,256
	11 mos.	1,159	13,793,792	2,003,676	17,275,936	2,654,052	2,845,912	397,785	6,797,852	735,802	13,400,140	77.56	3,875,796	3,401,710	2,499,160	2,103,337
San Antonio, Uvalde & Gulf	Nov.	318	103,710	15,330	131,504	43,350	15,798	5,125	50,858	6,871	122,357	93.0	9,147	5,302	—16,526	—6,319
	11 mos.	318	1,672,844	191,696	2,008,609	430,669	250,481	60,196	620,100	82,252	1,448,353	72.1	560,256	518,171	197,707	113,540
Texas & Pacific	Nov.	2,015	3,855,059	469,041	4,618,119	877,135	619,209	77,279	1,400,803	122,794	3,100,600	67.1	1,517,519	1,313,947	1,012,825	910,201
	11 mos.	2,015	38,079,291	5,386,416	46,232,472	7,497,174	7,154,991	887,399	14,548,496	1,241,174	31,332,390	67.8	14,900,082	12,805,882	9,560,250	5,606,702
Mobile & Ohio	Nov.	1,159	1,377,323	82,829	1,538,471	198,237	271,974	63,303	531,473	49,170	1,111,588	72.3	426,883	320,651	289,759	191,297
	11 mos.	1,160	14,037,445	1,048,949	15,954,694	2,345,397	2,782,623	617,804	5,846,122	535,062	12,098,427	75.8	3,856,267	2,870,025	2,395,807	2,688,294
Monongahela	Nov.	171	627,852	10,541	641,967	90,000	60,000	1,153	160,018	10,562	319,908	49.8	322,059	293,664	190,483	147,403
	11 mos.	171	6,406,009	159,126	6,615,086	905,000	815,000	12,292	1,669,026	116,327	3,502,786	53.0	3,112,300	2,851,760	1,790,262	2,144,299
Monongahela Connecting	Nov.	7	.....	.....	189,614	35,377	44,646	300	83,471	3,333	167,127	88.1	22,487	14,459	9,755	12,864
	11 mos.	7	.....	.....	1,957,838	231,685	358,939	3,733	843,140	37,039	1,474,536	75.3	483,302	388,820	371,798	305,302
Montour	Nov.	56	171,631	.....	172,766	26,456	56,291	1,241	41,163	7,285	132,436	76.7	40,330	38,775	56,104	50,293
	11 mos.	56	1,577,124	27	1,586,260	261,341	497,579	13,541	359,792	76,255	1,204,741	75.9	381,519	364,853	623,241	366,772
Nashville, Chattanooga & St. Louis	Nov.	1,259	1,645,317	248,431	2,073,623	248,634	411,912	77,787	696,126	79,553	1,520,884	73.3	552,739	447,509	442,426	246,910
	11 mos.	1,259	16,685,083	3,065,850	21,534,836	2,684,303	4,509,719	894,031	7,404,043	876,607	16,447,178	76.4	5,087,658	4,139,487	4,153,449	3,679,572
Nevada Northern	Nov.	165	100,862	4,695	114,747	12,072	6,258	886	17,602	4,947	41,918	36.5	72,829	57,753	56,209	17,267
	11 mos.	165	888,062	57,127	1,038,440	145,616	90,748	10,514	169,383	49,857	468,091	45.1	570,349	433,998	425,796	339,025
Newburgh & South Shore	Nov.	6	.....	.....	177,787	16,353	37,651	.....	63,062	6,607	123,673	69.6	54,114	34,335	45,714	32,037
	11 mos.	6	.....	.....	1,928,319	188,960	449,271	.....	725,378	62,402	1,426,011	74.0	502,308	308,058	347,027	242,989
New Orleans Great Northern	Nov.	276	247,172	15,206	270,201	31,318	36,821	12,646	70,762	12,002	163,532	60.5	106,669	80,824	58,889	40,468
	11 mos.	276	2,688,959	211,328	2,994,184	408,541	462,386	144,535	903,687	125,056	2,045,926	68.3	948,258	750,872	528,142	525,580
New Orleans Terminal	Nov.	20	5,178	.....	157,559	23,527	8,099	.....	21,194	1,492	54,312	34.5	103,247	94,240	88,071	57,259
	11 mos.	20	20,686	.....	1,545,274	254,407	86,139	.....	518,142	18,782	877,470	56.8	667,804	549,682	468,466	480,154
New York Central	Nov.	6,906	20,236,227	7,153,281	31,759,903	4,587,826	7,142,523	475,026	11,565,488	1,095,202	25,334,029	79.8	6,425,874	4,363,129	4,413,028	3,108,245
	11 mos.	6,906	216,280,305	88,283,880	350,269,316	47,316,698	74,499,584	5,001,905	121,770,183	12,333,939	266,336,317	76.0	83,932,999	59,667,915	57,873,078	57,665,841
Cincinnati Northern	Nov.	244	327,299	3,697	341,516	38,560	73,809	6,726	118,106	10,004	247,205	72.4	94,311	69,338	65,238	48,714
	11 mos.	244	3,580,988	53,081	3,737,070	457,945	767,164	69,176	1,245,387	119,352	2,662,629	71.2	1,074,441	816,394	577,236	772,710
Cleve., Cinn., Chicago & St. Louis	Nov.	2,396	5,771,764	1,053,443	7,504,570	952,264	1,525,728	160,752	2,781,640	257,950	5,751,641	76.6	1,752,929	1,287,435	1,401,350	986,621
	11 mos.	2,396	62,075,124	13,284,477	82,473,408	9,409,630	17,512,356	1,686,459	30,369,331	2,948,197	62,800,562	76.1	19,672,846	14,877,334	13,180,532	13,987,001
Indiana Harbor Belt	Nov.	130	.....	.....	1,064,958	74,508	92,991	5,147	397,679	25,102	604,711	56.8	460,247	395,040	332,016	83,292
	11 mos.	130	.....	.....	11,706,777	1,161,571	1,229,610	52,831	4,456,601	281,344	7,323,741	62.6	4,383,036	3,670,017	3,108,308	1,677,747
Michigan Central	Nov.	1,858	5,295,494	1,441,526	7,537,450	747,218	1,583,653	145,690	2,393,732	241,119	5,204,064	69.0	2,333,386	1,837,141	1,720,232	1,470,429
	11 mos.	1,858	59,515,502	18,021,221	86,006,595	9,327,072	16,765,052	1,453,259	26,922,974	2,356,799	57,922,437	67.4	28,084,158	22,222,415	21,226,661	19,608,502
Pittsburgh & Lake Erie	Nov.	231	2,486,664	187,422	2,775,279	385,718	863,175	27,056	936,728	77,953	2,299,250	82.8	476,029	297,478	725,246	488,661
	11 mos.	231	25,720,119	2,202,413	28,882,919	3,930,625	9,246,009	304,415	9,289,975	915,516	23,732,887	82.2	5,150,032	3,334,246	7,042,312	7,647,573
New York, Chicago & St. Louis	Nov.	1,690	4,206,401	123,771	4,488,166	556,490	782,288	118,153	1,590,469	137,784	3,160,340	70.4	1,327,826	1,039,321	870,869	744,423
	11 mos.	1,690	45,494,752	1,658,833	48,715,042	6,236,797	9,067,909	1,384,799	17,031,884	1,534,962	35,084,746	72.0	13,630,296	10,839,519	8,596,360	8,776,066

Revenues and Expenses of Railways

MONTH OF NOVEMBER AND ELEVEN MONTHS OF CALENDAR YEAR 1928—CONTINUED

Revenues and Expenses of Railways

MONTH OF NOVEMBER AND ELEVEN MONTHS OF CALENDAR YEAR 1928—CONTINUED

Name of road		Av. mileage operated during period.	Operating revenues: Freight.	Passenger.	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures.	Maintenance of Equipment.	Traffic.	Transportation.	General.	Total.	Operating ratio.	Net from railway operation.	Operating income (or loss).	Net ry. operating income.	Net ry. operating income, 1927.
N. Y., New Haven & Hartford	Nov.	2,133	$6,767,548	$4,222,604	$12,260,177	$1,420,159	$1,822,486	$90,354	$3,653,140	$320,721	$7,485,805	61.1	$4,774,372	$4,013,755	$3,418,062	$2,448,301
	11 mos.	2,150	69,373,786	43,039,922	126,007,382	17,672,302	22,161,779	1,051,159	40,336,030	3,499,529	86,625,747	68.7	39,381,635	32,581,481	26,435,408	23,316,059
New York Connecting	Nov.	20	232,337	.....	265,595	20,770	13,609	.....	37,902	4,824	76,073	28.9	188,922	149,222	122,369	135,305
	11 mos.	20	2,269,573	.....	2,607,341	277,071	137,958	.....	466,796	21,171	902,996	34.6	1,704,345	1,265,134	980,823	1,141,149
New York, Ontario & Western	Nov.	569	783,647	48,959	1,000,933	152,736	200,201	21,203	454,470	31,625	864,839	86.4	136,094	102,512	43,445	7,934
	11 mos.	569	7,750,525	2,149,097	11,813,908	1,727,657	2,151,109	216,835	5,171,982	374,444	9,704,701	82.1	2,109,207	1,609,867	957,493	1,076,267
Norfolk & Western	Nov.	2,241	9,239,233	404,651	9,971,301	1,255,744	1,764,496	114,579	2,294,801	274,972	5,721,482	57.4	4,249,819	3,549,526	3,865,655	2,078,614
	11 mos.	2,241	89,050,105	5,209,726	97,638,443	14,503,267	18,125,079	1,240,597	24,341,144	2,813,875	61,064,313	62.5	36,574,130	28,167,173	30,919,421	31,689,332
Norfolk Southern	Nov.	931	679,815	31,522	757,977	112,494	103,306	27,573	284,409	28,013	554,670	73.2	203,307	132,524	112,763	123,435
	11 mos.	931	7,492,977	455,043	8,458,539	1,119,924	1,198,338	302,883	3,132,625	324,635	6,060,478	71.6	2,398,061	1,757,046	1,472,294	1,613,254
Northern Pacific	Nov.	6,772	7,783,685	730,099	9,241,226	651,628	1,527,294	183,485	2,779,300	251,569	5,469,149	59.2	3,772,077	2,809,621	3,230,235	3,375,533
	11 mos.	6,726	75,814,841	9,853,170	93,704,907	11,896,642	17,343,341	2,358,910	30,204,180	2,802,948	65,575,942	70.	28,128,965	19,185,028	23,208,129	20,515,173
Northwestern Pacific	Nov.	477	257,288	117,839	424,933	108,165	97,672	6,843	256,667	20,767	489,513	115.2	—64,580	—102,877	—108,912	—66,359
	11 mos.	477	3,694,818	1,640,741	5,967,565	1,182,249	983,677	100,353	2,726,612	239,081	5,277,720	87.9	722,839	287,639	201,869	703,345
Pennsylvania R. R.	Nov.	10,487	41,657,961	9,743,275	57,013,034	7,805,887	11,008,233	798,409	19,656,922	1,609,602	41,540,200	72.9	15,472,834	12,535,692	11,453,755	8,245,679
	11 mos.	10,487	421,200,107	120,113,424	597,676,660	77,228,156	119,475,031	8,946,757	208,378,310	17,604,741	438,797,961	73.4	158,878,699	124,648,507	110,703,831	101,626,547
Baltimore, Chesapeake & Atlantic	Nov.	130	70,907	20,935	98,553	21,433	9,614	1,245	69,512	3,166	104,970	106.5	—6,417	—6,417	—7,798	—4,594
	11 mos.	130	857,003	311,404	1,253,411	154,242	489,418	20,640	805,733	24,427	1,494,460	119.2	—241,049	—290,908	—291,820	—117,904
Long Island	Nov.	403	1,033,472	1,936,661	3,194,283	442,255	454,602	24,311	1,328,611	47,772	2,299,200	72.0	895,083	734,974	545,197	374,064
	11 mos.	403	10,759,799	24,391,694	37,404,155	4,797,370	5,144,386	366,870	14,807,689	881,743	26,027,072	69.6	11,377,083	8,817,408	7,139,259	5,719,519
West Jersey & Seashore	Nov.	370	426,966	225,878	692,787	118,803	96,562	5,338	354,038	14,113	589,631	85.1	103,156	103,136	77,856	19,775
	11 mos.	370	4,469,091	4,838,979	9,797,044	1,418,531	1,375,583	138,276	4,317,074	245,878	7,502,781	76.6	2,294,263	1,293,252	958,900	811,125
Peoria & Pekin Union	Nov.	19	26,975	1,750	154,623	36,946	16,231	5,375	63,260	7,709	129,521	83.8	25,102	—4,007	14,282	31,436
	11 mos.	19	294,866	19,166	1,761,272	225,817	162,156	41,968	735,341	83,583	1,248,865	70.9	512,407	302,530	549,745	461,662
Pere Marquette	Nov.	2,244	3,536,133	191,783	3,973,462	308,845	755,628	64,679	1,284,257	108,838	2,521,923	63.5	1,451,539	1,189,666	1,023,108	455,211
	11 mos.	2,244	37,144,315	2,731,319	42,394,629	4,655,145	8,383,219	711,692	13,709,677	1,202,218	28,640,676	67.6	13,753,953	11,292,790	9,988,461	8,819,088
Pittsburgh & Shawmut	Nov.	102	137,092	2,711	141,276	25,580	36,024	1,616	41,414	6,269	110,903	78.5	30,373	30,230	31,101	40,983
	11 mos.	102	1,663,731	39,087	1,727,059	249,679	376,764	20,017	481,689	74,742	1,202,891	69.6	524,168	510,277	477,087	413,484
Pittsburgh & West Virginia	Nov.	92	357,634	4,808	396,259	33,044	91,736	16,275	72,836	25,219	249,632	63.0	146,627	96,327	191,960	154,119
	11 mos.	92	3,733,494	57,899	4,149,755	276,910	812,201	169,948	747,662	231,246	2,347,129	56.6	1,802,626	1,237,764	2,077,978	1,832,165
Pittsburgh, Shawmut & Northern	Nov.	198	150,691	1,613	157,033	28,413	26,238	1,640	49,243	6,701	112,235	71.5	44,798	41,820	36,087	19,408
	11 mos.	198	1,704,086	20,391	1,763,552	381,978	337,929	18,464	553,966	65,861	1,358,198	77.0	405,354	371,769	286,896	165,450
Quincy, Omaha & Kansas City	Nov.	249	42,462	6,988	55,941	27,147	8,413	784	23,207	2,299	61,735	110.4	—5,794	—10,630	—13,606	—28,504
	11 mos.	249	506,787	94,557	674,629	350,060	93,718	8,182	306,043	26,959	782,402	116.0	—107,773	—161,144	—193,231	—179,078
Reading	Nov.	1,151	7,001,529	595,233	8,198,380	1,277,205	1,687,681	80,509	2,699,518	201,271	6,090,843	74.3	2,107,537	1,688,280	1,876,980	1,664,358
	11 mos.	1,137	70,411,722	7,124,439	82,082,228	11,390,089	18,812,994	965,708	30,073,914	2,315,994	63,799,993	77.7	18,282,235	14,021,146	15,372,658	15,951,049
Atlantic City	Nov.	163	125,476	88,103	230,844	57,626	31,521	7,486	168,126	5,258	270,104	117.0	—39,260	—79,260	—122,525	—91,006
	11 mos.	162	1,282,845	2,017,543	3,513,359	780,919	309,481	84,026	2,124,376	68,139	3,372,115	96.0	141,244	—284,262	—595,443	—398,166
Perkiomen	Nov.	41	110,647	2,491	116,108	20,321	5,597	109	52,312	1,313	79,627	68.6	36,481	28,261	21,530	30,099
	11 mos.	41	1,116,946	34,791	1,185,034	178,198	68,179	1,173	525,541	13,744	787,125	66.4	397,909	350,631	276,676	322,602
Port Reading	Nov.	19	143,482	.....	214,805	22,337	6,176	229	71,126	1,517	101,380	47.2	113,425	99,507	28,708	15,878
	11 mos.	19	1,569,971	.....	2,142,660	226,435	141,810	2,519	734,633	31,583	1,136,866	53.1	1,005,794	848,799	43,765	152,563
Richmond, Fredericksburg & Potomac	Nov.	117	440,838	243,287	857,080	74,300	148,447	9,296	308,736	33,365	590,818	68.9	266,262	211,010	178,364	106,087
	11 mos.	117	4,879,171	3,315,809	10,031,617	1,137,966	1,764,377	107,223	3,552,607	395,130	7,208,243	71.9	2,823,374	2,254,439	1,682,255	1,673,301
Rutland	Nov.	413	290,042	55,964	473,642	95,536	91,106	11,191	190,081	15,709	406,226	85.8	67,416	42,989	46,168	—318,626
	11 mos.	413	3,467,124	1,155,646	6,145,455	1,237,082	1,105,637	126,688	2,284,300	175,934	4,951,613	80.6	1,193,842	881,102	889,341	390,111
St. Louis-San Francisco	Nov.	5,312	5,485,497	851,381	6,893,871	813,774	1,227,120	123,862	2,455,894	231,912	4,798,583	69.6	2,095,288	1,600,517	1,691,229	1,799,139
	11 mos.	5,261	59,335,177	10,507,101	75,538,712	9,472,857	14,639,318	1,374,763	25,140,926	2,554,016	52,438,488	69.4	23,100,224	18,377,206	18,804,613	19,925,285
Ft. Worth & Rio Grande	Nov.	233	137,282	9,937	159,779	2,130	12,689	3,259	54,345	5,204	74,037	46.3	85,742	81,633	74,190	874
	11 mos.	233	936,630	121,929	1,197,067	210,714	217,683	37,103	574,701	56,904	1,087,647	90.9	109,420	63,903	—30,848	—167,904
St. Louis, San Francisco & Texas	Nov.	154	199,028	13,048	219,512	34,262	26,139	5,082	66,117	7,345	138,454	63.1	81,058	77,850	48,411	26,525
	11 mos.	154	1,573,406	132,533	1,770,445	303,068	288,393	55,107	668,222	81,954	1,393,243	78.7	377,202	339,784	55,600	16,331
St. Louis Southwestern	Nov.	940	1,350,275	76,113	1,504,551	158,981	245,374	70,218	391,970	66,289	939,922	62.5	564,629	498,850	355,892	321,558
	11 mos.	940	14,853,237	918,455	16,544,738	2,125,117	2,589,599	756,326	4,308,532	716,612	10,553,709	63.8	5,991,029	5,204,449	3,887,119	3,308,013
St. Louis, Southwestern of Texas	Nov.	807	531,173	43,334	638,297	207,823	127,032	28,045	263,427	36,042	669,672	104.9	—31,375	—59,132	—40,041	102,576
	11 mos.	807	5,901,221	499,096	6,979,189	2,176,827	1,371,650	334,982	2,869,417	378,888	7,181,107	103.0	—209,918	—516,501	—148,910	524,382
San Diego & Arizona	Nov.	156	83,476	15,278	103,659	18,581	15,176	4,551	27,938	9,122	76,601	73.9	27,058	21,163	19,533	6,168
	11 mos.	156	901,313	176,649	1,127,398	196,576	183,793	44,837	315,417	98,527	854,441	75.8	272,957	209,508	207,420	250,096
Seaboard Air Line	Nov.	4,496	3,994,146	520,740	4,948,641	671,028	840,961	197,174	1,737,669	181,341	3,671,229	74.2	1,277,412	1,005,973	899,462	797,351
	11 mos.	4,499	40,073,483	7,110,232	52,130,919	6,207,926	8,692,742	2,196,439	19,427,135	2,006,060	39,200,621	75.2	12,930,298	9,645,470	9,047,901	9,831,741

Revenues and Expenses of Railways

MONTH OF NOVEMBER AND ELEVEN MONTHS OF CALENDAR YEAR 1928—CONTINUED

Revenues and Expenses of Railways

MONTH OF NOVEMBER AND ELEVEN MONTHS OF CALENDAR YEAR 1928—CONTINUED

Name of road		Av. mileage operated during period.	Operating revenues: Freight.	Passenger.	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures.	Maintenance of Equipment.	Traffic.	Transportation.	General.	Total.	Operating ratio.	Net from railway operation.	Operating income (or loss).	Net ry. operating income.	Net ry. operating income, 1927.
Southern Ry.	Nov.	6,730	$9,538,913	$1,655,519	$12,255,830	$1,652,797	$1,955,991	$260,409	$3,890,829	$364,678	$8,198,081	66.9	$4,057,749	$3,197,419	$3,160,529	$2,916,583
	11 mos.	6,763	100,017,003	21,831,986	132,254,826	19,595,492	22,928,027	2,838,968	43,760,127	3,941,778	93,926,782	71.0	38,328,044	29,551,649	27,879,967	30,342,811
Alabama Great Southern	Nov.	314	666,712	129,531	852,781	92,406	155,558	23,833	237,571	24,975	541,381	63.5	311,400	256,407	296,119	225,185
	11 mos.	314	7,031,023	1,604,778	9,258,763	1,570,291	1,803,363	243,817	2,730,351	261,584	6,686,027	72.2	2,572,736	1,898,299	2,218,272	2,288,244
Cinn., New Orleans & Tex. Pac.	Nov.	338	1,437,109	230,882	1,770,056	266,980	458,447	48,987	488,507	55,075	1,327,942	75.0	442,114	356,580	357,399	265,194
	11 mos.	338	15,844,931	2,985,327	19,902,756	3,125,664	4,014,678	485,542	5,561,739	580,555	13,915,031	69.9	5,987,725	4,792,854	4,577,768	4,442,068
Georgia Southern & Florida	Nov.	397	278,191	77,542	385,616	67,686	62,483	2,889	99,859	2,746	238,729	61.9	146,887	124,025	128,622	108,868
	11 mos.	398	2,600,299	1,145,524	4,077,705	850,329	826,581	95,017	1,622,664	93,496	3,550,794	87.1	526,911	279,501	284,836	298,977
New Orleans & Northeastern	Nov.	204	375,609	59,393	473,881	64,877	87,801	11,786	138,015	13,537	320,081	67.5	153,800	102,682	59,144	88,938
	11 mos.	204	3,950,679	747,118	5,050,945	708,459	897,785	137,926	1,482,482	160,800	3,432,491	68.0	1,618,454	1,110,386	746,080	955,978
Northern Alabama	Nov.	110	130,971	6,574	141,504	26,719	2,560	2,056	33,114	2,740	67,281	47.5	74,223	69,163	49,083	22,149
	11 mos.	110	962,662	73,079	1,066,560	273,254	32,830	21,442	359,449	30,446	717,172	67.2	349,388	283,640	65,336	196,722
Southern Pacific	Nov.	8,897	13,407,557	2,796,984	17,839,872	2,214,993	2,717,663	395,825	6,251,871	629,969	12,508,436	70.1	5,331,436	3,888,149	3,472,792	3,331,849
	11 mos.	8,906	148,155,922	35,489,221	202,195,250	24,987,266	32,513,390	4,522,501	66,580,843	7,213,865	139,009,283	68.7	63,185,967	46,858,586	42,373,078	40,838,949
So. Pacific Steamship Lines	Nov.	....	834,372	32,978	964,780	20,963	239,443	20,386	600,397	28,758	909,947	94.3	54,833	47,137	50,451	76,487
	11 mos.	....	8,441,025	622,802	10,340,401	205,589	2,227,472	198,835	6,529,573	394,809	9,556,278	92.4	784,123	740,627	767,070	1,150,753
Texas & New Orleans	Nov.	4,728	4,959,926	793,378	6,280,156	939,077	1,187,169	177,827	2,067,382	260,474	4,652,824	74.1	1,627,332	1,273,544	1,059,156	1,137,772
	11 mos.	4,728	49,444,881	9,884,218	64,421,055	10,428,023	12,852,846	1,949,062	22,392,151	2,863,063	50,434,844	78.3	13,986,211	10,217,959	8,301,157	6,020,841
Spokane, Portland & Seattle	Nov.	554	686,617	75,704	822,489	139,093	100,618	9,579	229,993	23,434	507,094	61.7	315,395	224,464	199,976	272,526
	11 mos.	554	6,849,845	1,048,059	8,603,476	1,391,066	1,102,769	123,056	2,447,278	253,187	5,368,071	62.4	3,235,405	2,278,675	2,148,080	2,275,067
Tennessee Central	Nov.	296	239,897	17,673	271,676	61,787	35,619	9,002	96,186	12,997	215,531	79.3	56,145	49,301	29,699	18,100
	11 mos.	296	2,642,875	214,945	3,006,650	633,040	422,162	97,007	1,063,637	141,055	2,355,709	78.3	650,941	573,907	363,255	319,312
Terminal Railroad Assn. of St. L.	Nov.	55	.....	.....	962,490	167,289	86,200	2,253	422,890	27,664	708,981	73.7	253,509	152,539	230,523	269,323
	11 mos.	55	.....	.....	11,856,920	1,929,875	962,366	27,210	4,928,836	329,749	8,197,972	69.1	3,658,948	2,574,517	3,492,302	3,618,197
Texas Mexican	Nov.	162	78,570	3,560	90,118	16,157	17,996	3,905	37,276	6,084	81,330	90.2	8,788	3,775	—4,935	—26,869
	11 mos.	162	1,029,373	46,259	1,156,112	176,257	185,170	42,539	407,988	65,877	876,605	75.8	279,507	224,287	142,857	—8,651
Toledo, Peoria & Western	Nov.	239	182,028	984	189,176	22,784	18,193	12,831	70,682	8,027	132,517	70.0	56,659	50,376	35,635	5,021
	11 mos.	239	1,906,232	18,991	2,002,562	388,111	217,605	122,072	696,629	91,720	1,516,137	75.7	486,425	433,491	282,980	31,548
Toledo Terminal	Nov.	28	.....	.....	134,609	1,282	16,769	553	55,647	4,787	79,038	58.7	55,571	39,396	58,906	31,323
	11 mos.	28	.....	.....	1,377,160	81,294	174,732	6,273	533,326	55,143	850,768	61.8	526,392	339,848	626,720	497,483
Trinity & Brazos Valley	Nov.	367	293,586	6,593	309,504	39,763	31,714	4,999	102,132	12,942	191,477	81.9	118,027	109,650	81,664	98,378
	11 mos.	367	2,245,418	85,280	2,413,648	486,595	371,242	58,983	930,108	129,977	1,910,059	79.1	503,589	419,032	143,464	147,666
Ulster & Delaware	Nov.	128	41,299	1,716	76,927	14,758	11,892	1,289	40,390	4,277	72,606	94.3	4,321	—1,435	—4,816	—1,948
	11 mos.	128	443,554	248,439	1,115,924	180,754	170,630	15,617	513,215	51,146	931,362	83.4	184,562	121,159	77,473	—18,735
Union Railroad of Penna.	Nov.	45	.....	.....	859,961	85,509	218,924	188	350,622	13,519	668,762	77.8	191,199	156,199	226,079	—8,021
	11 mos.	45	.....	.....	9,436,490	930,441	2,038,772	1,799	4,009,481	148,676	7,129,169	75.5	2,307,321	1,925,802	2,966,157	1,785,549
Union Pacific	Nov.	3,765	8,786,901	1,044,566	10,722,334	830,453	2,036,938	166,395	2,853,989	335,772	6,377,563	59.5	4,344,771	3,591,637	3,103,543	2,656,045
	11 mos.	3,728	89,697,430	13,801,687	112,741,603	12,308,480	22,044,701	1,995,542	29,737,515	3,623,139	71,706,521	63.6	41,035,082	33,337,944	29,015,864	25,556,615
Oregon Short Line	Nov.	2,539	2,960,730	262,651	3,517,083	359,234	529,604	49,676	940,722	131,178	2,054,855	58.4	1,462,228	1,131,035	1,002,416	1,008,321
	11 mos.	2,539	29,425,283	3,618,349	35,698,472	5,334,852	5,643,330	610,126	9,987,005	1,364,725	23,634,813	66.2	12,063,659	8,986,551	7,755,514	6,463,049
Oregon-Wash. R. R. & Nav. Co.	Nov.	2,365	2,034,467	213,428	2,492,492	268,690	392,645	74,525	889,730	129,289	1,792,790	71.9	699,702	521,408	248,966	598,542
	11 mos.	2,352	21,760,076	3,054,657	27,421,801	4,898,277	4,266,758	840,414	9,899,257	1,397,295	21,663,946	79.0	5,757,855	3,688,905	9,899,813	2,683,295
Los Angeles & Salt Lake	Nov.	1,208	1,543,800	259,906	2,000,924	361,035	341,298	84,184	599,846	81,409	1,555,115	77.7	445,809	289,808	184,162	214,659
	11 mos.	1,209	15,898,429	4,280,768	22,748,890	4,131,664	3,989,947	863,540	7,038,776	855,144	18,146,123	79.8	4,602,767	3,058,866	1,890,178	1,987,812
St. Joseph & Grand Island	Nov.	258	301,135	10,198	330,794	47,256	33,953	3,447	112,708	14,955	212,319	64.2	118,475	96,635	73,992	89,257
	11 mos.	258	3,409,909	128,403	3,778,673	718,460	415,895	38,829	1,259,001	165,993	2,603,583	68.9	1,175,090	945,072	705,660	462,372
Utah	Nov.	111	191,248	.....	191,293	28,008	28,582	332	40,953	5,701	103,576	54.1	87,717	76,885	63,219	64,641
	11 mos.	111	1,555,219	108	1,559,197	280,657	416,014	4,148	333,620	63,119	1,097,558	70.4	461,639	373,229	258,602	418,644
Virginian	Nov.	545	1,535,383	27,992	1,637,939	108,498	312,600	13,331	319,819	34,590	784,742	47.9	853,197	678,172	758,176	664,091
	11 mos.	545	15,749,128	382,292	17,028,786	1,788,776	3,552,696	159,063	3,585,394	391,695	9,433,918	55.4	7,594,873	5,913,584	6,426,607	8,819,972
Wabash	Nov.	2,524	4,912,547	503,203	5,864,705	689,952	1,024,437	169,057	2,248,339	191,001	4,326,196	73.8	1,538,509	1,298,744	977,753	691,027
	11 mos.	2,524	53,735,942	6,557,693	64,858,528	8,997,838	10,915,797	1,864,204	24,487,765	2,035,320	48,442,931	74.7	16,415,597	13,682,370	10,324,153	8,807,180
Ann Arbor	Nov.	293	481,533	16,476	516,917	54,015	106,788	14,660	190,762	11,202	377,396	73.0	139,521	105,800	89,235	85,968
	11 mos.	293	5,033,376	200,754	5,440,367	579,313	1,178,124	152,004	2,034,810	124,592	4,052,096	74.5	1,388,271	1,099,301	838,191	738,009
Western Maryland	Nov.	875	1,525,990	24,243	1,617,016	214,125	298,012	40,787	423,472	43,516	1,030,435	63.7	586,581	506,581	563,110	555,290
	11 mos.	860	16,213,442	347,968	17,111,531	2,609,587	3,288,919	459,542	4,648,626	484,507	11,575,202	67.6	5,536,329	4,631,329	4,926,472	5,586,615
Western Pacific	Nov.	1,050	1,342,599	66,446	1,508,802	164,810	211,884	62,264	520,571	45,131	1,049,881	69.6	458,921	363,418	406,772	125,379
	11 mos.	1,050	13,440,691	1,421,843	16,219,937	3,171,333	2,795,438	668,399	5,532,100	509,768	13,152,515	81.1	3,067,422	2,021,307	2,347,345	2,266,110
Wheeling & Lake Erie	Nov.	511	1,657,223	21,067	1,792,401	192,643	376,877	41,715	506,682	57,508	1,174,554	65.5	617,847	483,161	448,264	75,627
	11 mos.	511	17,780,310	287,690	19,235,528	2,431,557	4,122,970	389,779	5,350,499	507,064	12,811,528	66.6	6,424,000	4,806,400	4,652,114	2,987,058
Wichita Falls & Southern	Nov.	168	120,495	1,844	128,996	15,984	11,835	2,391	28,626	3,982	62,818	48.70	66,178	61,205	57,807	30,979
	11 mos.	168	941,854	24,850	1,020,653	173,792	129,388	28,613	286,723	43,754	661,335	64.80	359,318	303,723	276,918	262,515

News of the Week

(*Continued from page 161*)

day and Sunday, January 19 and 20, to discuss a variety of railroad topics. President Daniel Willard will be a principal speaker, and Professor Emory R. Johnson, of the University of Pennsylvania, will speak on consolidation of railroads. The general chairman, for the Baltimore & Ohio, of each employee organization, is a member of an "Association of General Chairmen" and this association has made the plans for the conference. Among the subjects to be discussed are collective bargaining; displacement of workmen in industry; the public's end of the railroad industry; rate regulation; and stabilization of employment. Delegates will be sent by the brotherhoods from all parts of the Baltimore & Ohio system. The first session of the conference will be on Saturday afternoon. William Ross, secretary of the Association of General Chairmen, is head of the committee of arrangements.

Big Damages

Two juries in the St. Louis (Mo.) Circuit Court in December awarded personal injury damage judgments totaling $186,000 against the Illinois Central and the St. Louis Merchants Bridge Terminal. Otho Ferguson of Mound City, Ill., was given a judgment of $96,000 against the Illinois Central for injuries received when an air reservoir exploded at Cairo, Ill., while he was inspecting a gondola car in 1926. He lost both eyes, an ear drum burst and his nose was smashed. Another jury awarded Charles P. Fitzgerald of St. Louis $90,000 from the Bridge Terminal Railroad for injuries sustained in 1925 while working as a switchman.

Chicago Union Station Handles Record Christmas Mail

The Christmas mail moved through the Union Station, Chicago, this season established a record in volume and speed of handling. Not only was the mail heavier, but it came earlier and was moved in shorter time than ever before. The peak of the movement came on December 20, when 189 carloads, including parcel post, passed through the terminal. The annual Christmas rush is approximately three times the ordinary flow of mail through the terminal. Of the four railroads carrying the mail to and from the Union Station, the Pennsylvania moves approximately one-third. This road alone handled an average of 80 carloads of mail daily in and out of the station for the six days preceding Christmas.

New York Central Begins Electrification Survey

An electrification project under which the New York Central plans the operation of trains between New York and Buffalo, N. Y., a distance of nearly 500 miles, with power from Niagara Falls is now under consideration by the railroad's officers and engineers and representatives of electrical equipment companies.

Although giving confirmation to the report that a power survey of this electrification program is actually under way, officers of the road stated that no conclusion had been reached as there are a number of questions to be considered in the project which they estimate would cost an approximate sum of $75,000,000.

The question of system, types of locomotives, the purchase of power and other features including the elimination of grade crossings to allow higher speed must be met with in the survey which is now under way by the mechanical and engineering departments of the road.

A. R. E. A. Nominates Officers

The Nominating Committee of the American Railway Engineering Association has chosen the following candidates for office for the year beginning at the conclusion of the annual convention next March: President, Louis Yager, assistant chief engineer, N. P., St. Paul, Minn. Vice-President, L. W. Baldwin, president, M. P., St. Louis, Mo. Secretary, E. H. Fritch. Treasurer, F. J. Stimson, assistant chief engineer maintenance, Penna., Chicago.

Directors, (three to be elected), J. E. Armstrong, assistant chief engineer, C. P. R., Montreal, Que.; C. B. Brown, chief engineer operation, C. N. R., Montreal, Que.; C. C. Cook, maintenance engineer, B. & O., Baltimore, Md.; C. R. Harding, engineer standards, S. P., San Francisco, Cal.; D. J. Kerr, assistant to vice-president, G. N., St. Paul, Minn.; Frank Ringer, chief engineer, M.-K.-T., St. Louis, Mo.; T. J. Skillman, chief engineer system, Penna., Philadelphia, Pa.; C. E. Smith, vice-president, New York, New Haven & Hartford, New Haven, Conn.; and J. E. Willoughby, chief engineer, A. C. L., Wilmington, N. C. In addition, G. D. Brook, general manager, C. & O., moves up automatically from second vice-president to first vice-president.

Cost of Panama Canal Figured at $540,000,000

The cost of the Panama Canal and the Panama Railroad to the government to date, including interest at 3 per cent compounded on the original investment, was placed at $540,000,000 in a statement before a sub-committee of the House committee on appropriations on December 11 by Col. Harry Burgess, governor of the Canal Zone. He said that last year the canal earned its interest but that he had had the auditor prepare what he called the "liability of the canal to the Treasury," the amount of money taken from the Treasury with interest each year and with deductions by amounts paid back either by the railroad or the canal. The original investment he said was $386,000,000 and although $113,000,000 of this has been charged to national defense he said that he did not agree that it was correct to do so.

"So far as I can see," he said, "the Canal is a unit. It is commercial and it is part of the national defense. From the commercial end of it you get certain returns in tolls. From the defense end of it you get a lower cost for the Navy per year. But taking it as a commercial enterprise, taking all of it, you want to know what you earn on it as a commercial enterprise. Then the unevaluated value of it, as a matter of defense, is very large."

When some members of the committee expressed surprise that he had figured in interest aside from that actually paid out on bonds issued for the canal he said, "If you have to borrow money to pay for it, you pay interest on your borrowings just the same. If you have not paid back your interest, that interest must be compounded." For 1928, he said, the canal paid a return of 6.94 per cent on the investment charged to commercial investment, $273,000,000.

Carrier Responsible for Agent's Fraud

A Seaboard Air Line employee, whose duty and practice it was to give notice to cotton factors of the arrival at Savannah of cotton under order-notify bills of lading, gave a factor a false notice of arrival of a shipment, in reliance on which the factor paid a forged draft attached to an apparently regular but forged bill of lading, with the proceeds of which the employee absconded. After presentation of the draft and before payment the employee had again informed the factor of the arrival of the cotton. The Circuit Court of Appeals, Fifth Circuit, 21 Fed. (2d) 883, reversing a judgment of the District Court for southern Georgia, held, under the general rule prevailing in the federal courts that an employer is not liable for the false statements of an agent made solely to effect a fraudulent design for his own benefit, and not in behalf of the employer or his business, the railroad was not liable in an action by the factor; citing Friedlander v. Texas & Pacific, 130 U. S. 416 as authority for this exception to the doctrine of *respondent superior*.

The Supreme Court of the United States reverses the judgment of the Court of Appeals and overrules the Friedlander case so far as it supports such an exception. The court says that the exception finds little support other than in a passage in the Friedlander case "and in cases, chiefly in some of the lower federal courts, purporting to follow it . . . . but in those cases it was not necessary to the decision. The state courts, including those of Georgia, where the cause of action arose, have very generally reached the opposite conclusion, holding that the liability of the principal for the false statement or other misconduct of the agent acting within the scope of his authority is unaffected by his secret purpose or notice. . . The English courts, after hinting at a departure from the rule as thus stated. . . . have finally reached the same conclusion." (citations omitted).

"Undoubtedly formal logic may find something to criticize in a rule which fastens on the principal liability for the acts of agents, done without the principal's knowledge or consent and to which his own negligence has not contributed. But few doctrines of the law are more

firmly established or more in harmony with accepted notions of social policy than that of the liability of the principal without fault of his own. The tendency of modern legislation in employers' liability and workmen's compensation acts and in the Bills of Lading Act cited; and of judicial decision as well, has been to enlarge rather than curtail the rule."

The rule of construction adopted by the court below, of section 22 of the Bills of Lading Act, as showing that Congress impliedly approved the rule contended for by legislating on the subject and creating an exception to the rule, supposedly announced in the Friedlander case instead of abolishing it, was held, whatever its scope and validity, to have no application to the present case. Gleason v. Seaboard Air Line, Decided January 2, 1929. Opinion by Mr. Justice Stone.

Revenues and Expenses for November

The net railway operating income of the Class I railroads in November, 1928, amounted to $113,694,856, which, for that month, was at the annual rate of return of 4.76 per cent on their property investment, according to reports compiled by the Bureau of Railway Economics. In November, 1927 the net was $86,708,399, or 3.71 per cent. Operating revenues for the month now reported, amounted to $531,218,583, compared with $504,314,198 in November, 1927, or an increase of 5.3 per cent. Operating expenses totaled $374,153,524, or a decrease of 0.8 per cent.

Class I railroads in November paid $33,971,554 in taxes, an increase of 9.2 per cent over the same month in 1927. This brought the total tax bill for eleven months in 1928 to $358,627,354, an increase of $3,637,442 or one per cent above that for the corresponding period in 1927.

Sixteen Class I railroads operated at a loss in November, of which eight were in the Eastern district, three in the Southern and five in the Western.

For eleven months the net railway operating income amounted to $1,099,837,653 at the annual rate of 4.74 per cent, as compared with $1,030,725,502, or 4.54 per cent, for the corresponding period of 1927. Operating revenues for the eleven months amounted to $5,683,198,609, a decrease of 1.1 per cent. Operating expenses for the first eleven months period of 1928 totaled $4,116,404,458, a decrease of 3.2 per cent.

Net railway operating income by districts for the first eleven months with the percentage of return based on property investment on an annual basis was as follows:

	Op. Income	Percent
New England Region	$ 40,939,280	4.82
Great Lakes Region	190,612,633	4.83
Central Eastern Region	241,774,193	5.03
Pocahontas Region	71,697,779	7.49
Total Eastern District	545,023,885	5.17
Total Southern District	121,242,615	4.18
Northwestern Region	136,755,937	4.26
Centralwestern Region	199,689,437	4.50
Southwestern Region	97,125,779	4.57
Total Western District	433,571,153	4.43
UNITED STATES	$1,099,837,653	4.74

The net of the Class I railroads in the Eastern district for the eleven months totaled $545,023,885, at the rate of 5.17 per cent, as compared with 5.02 per cent for the same period in 1927. Operating revenues for eleven months totaled $2,789,151,398, a decrease of 2.3 per cent, while operating expenses totaled $2,026,089,519 a decrease of 4.6 per cent. For November the net railway was $55,481,366, compared with $34,600,877 in November, 1927.

Class I railroads in the Southern district for eleven months had a net of $121,242,615, at the rate of 4.18 per cent. For the same period in 1927 their net amounted to $128,285,599, at the annual rate of return of 4.55 per cent. Operating revenues for the eleven months amounted to $709,245,739, a decrease of 5.7 per cent, while operating expenses totaled $536,418,400, a decrease of 5.9 per cent. The net in November totaled $12,650,508, while in November, 1927, it was $9,610,245.

Class I railroads in the Western district for eleven months had a net of $433,571,153, at the rate of 4.43 per cent. For the eleven months in 1927, they had a net of $384,884,820, at the rate of 4.03 per cent. Operating revenues in the Western district for eleven months amounted to $2,184,801,472, an increase of 2.2 per cent, while operating expenses totaled $1,553,896,539, a decrease of three-tenths of one per cent compared. For November, the net in the Western district amounted to $45,562,982. The net railway operating income of the same roads in November, 1927, totaled $42,497,277.

CLASS I RAILROADS—UNITED STATES

	1928	1927
Month of November		
Total operating revenues	$ 531,218,583	$ 504,314,198
Total operating expenses	374,153,524	377,167,017
Taxes	33,971,554	31,113,157
Net Railway Operating income	113,694,856	86,708,399
Operating ratio—per cent	70.43	74.79
Per cent return on property	4.76	3.71
Eleven months ended November 30		
Total operating revenues	$5,683,198,609	$5,743,744,443
Total operating expenses	4,116,404,458	4,252,127,141
Taxes	358,627,354	354,989,912
Net Railway Operating income	1,099,837,653	1,030,725,502
Operating ratio—per cent	72.43	74.03
Per cent return on property	4.74	4.54

A Railway Patron's Tribute

The accompanying "New Year's tribute" is a reproduction of a full-page advertisement inserted in several large metropolitan newspapers around the first of the year.

A New Year's Tribute
to
American Railroads

By a Manufacturer *who has shared in their large contributions to national prosperity*

IN closing its books for 1928, American business leaves one debt unpaid. It is a debt that can never be paid—it can only be acknowledged in the form of a grateful tribute.

And the Simmons Company wishes in this way to pay such a tribute—

• • •

In the 63 warehouses of the Simmons Company scattered over the country, inventories have been reduced from 10% to 50% in the last three years, in spite of a substantial increase in sales and greatly improved delivery service to thousands of retail distributors. These retail distributors have in turn been enabled to reduce inventories and to turn stock more rapidly.

Throughout the nation hundreds of millions of dollars have thus been released from the necessity of financing goods in transit and storage and diverted to productive enterprise. There is no doubt we have the improvement of railroad freight service to thank in very large part for this powerful impulse to the growth of national prosperity.

• • •

Probably every manufacturer of nationally distributed products has felt the stimulus of the new pace of transportation. Certainly the knowledge that innovation and improvement of product will go swiftly to the public is a source of inspiration in the creative and experimental activities of the Simmons Company.

• • •

Therefore it is with genuine pleasure that we offer a New Year's toast to the Atterburys, Baldwins, Budds, Carrys, Pat Crowleys, Carl Grays, Holdens, Hungerfords, Elisha Lees, Lorees, Markhams, Sargents, Storeys, Daniel Willards, and to all those who work under their competent leadership.

Let it be known that their accomplishments are already numbered among the finest traditions of American business, and among its most wholesome benefactions to public welfare.

SIMMONS COMPANY

Makers of Beds, Beautyrest Mattress and Ace Box Spring

Traffic

Oral arguments were heard by the Interstate Commerce Commission on January 3 and 4 on the proposed report by Examiners Bardwell and Faul in No. 17,000, part 6, the commission's investigation of rates on iron and steel under the Hoch-Smith resolution.

"The Ambassador," the through day train between Boston and Montreal, over the Boston & Maine, the Central Vermont and the Canadian National, has (in each direction) a Pullman parlor car, equipped with radio receiving apparatus, with headphones provided at each chair.

The Baltimore & Ohio has moved the Chicago offices of the general freight agent, the assistant general freight agent, the district freight agent, the foreign freight agent, the general passenger agent and the assistant general passenger agent from the Standard Trust Building to Room 1430 Bankers Building, 105 W. Adams street.

The Canadian National reports that the grain loaded into cars on its lines in western Canada this year amounted to 120,010 cars, as compared with 90,076 in the same period of 1927. The "grain year" extends from August 1, to December 31, inclusive. The number of cars delivered at Lake Superior this year was 96,081 as compared with 76,592 the year before; number delivered at Pacific Coast terminals, 14,813 as compared with 8,639 in the preceding year.

The Southern Pacific on December 26, inaugurated a second automobile baggage-car service. It is between Sacramento, Cal., and Reno, Nev., 154 miles. For several months each winter heavy snowfall in the Sierra Nevada mountains closes the Lincoln highway to automobiles between Reno and Sacramento. The auto-baggage car will leave Sacramento on Mondays, Wednesdays and Fridays and leave Reno on Tuesdays, Thursdays and Saturdays. The charge will be about ten cents a mile.

The Great Lakes Regional Advisory Board will hold its twenty-third regular meeting at Hotel Statler, Detroit, Mich., on January 17. Professor C. S. Dunford of Michigan State College will address the meeting. At a luncheon to be given by the Traffic Club of Detroit, following the morning session of the Board, the principal speaker will be William B. Stout, consulting engineer of the Airplane Division of the Ford Motor Company. The president of the Great Lakes Regional Advisory Board is Kenneth A. Moore.

The "Official Guide" for January contains the timetables of the Universal Aircraft System, operating airplanes between Minneapolis and Chicago; Chicago and St. Louis; Chicago and Cleveland; and St. Louis and Kansas City. A map of the territory covered is shown, together with rates of fare and information about railroad connections.

Record-Breaking Passenger Movement to New York

The New York Central brought into New York City from the west on Monday morning, January 7, between 5 o'clock and 9:50, 266 sleeping cars, which is 16 more than the total number in a similar movement one year ago. The automobile show in New York accounts for the greater part of this traffic. All of the trains arriving within this five-hour period were run in two or more sections; and included in the list is the Twentieth Century Limited, of which there were seven sections carrying 822 passengers. The "Century" also brought from the west to Albany, 64 passengers for New England points. The westbound travel from New York was also very heavy on January 5, 6 and 7.

Commission Allows Lake Cargo Rates to Become Effective

The compromise lake cargo rate tariffs, establishing rates on lake cargo coal from the Pennsylvania and Ohio coal districts on the basis of a differential of 35 cents a ton under the rates from the southern coal district, went into effect on January 1 after the Interstate Commerce Commission had voted the day before not to suspend them. The rates from the northern fields were increased 20 cents a ton and those from the southern fields 10 cents a ton as compared with the rates that have been in effect, which represented a 45-cent differential. Meanwhile the validity of the order of the commission directing cancellation of the reduced rates filed by the southern roads which went into effect earlier in the year is involved in a case pending in the Supreme Court of the United States.

Revision of Petroleum Rates Proposed

An extensive revision of rates on petroleum and its products in and between southern and official territories, east of the Illinois-Indiana state line, and from points in Illinois, Missouri, Kansas, Oklahoma, Arkansas, Louisiana and Texas, has been proposed by Examiners Keeler and Peyser of the Interstate Commerce Commission in a proposed report in No. 17,000, Part 4 of the commission's investigation of petroleum rates under the Hoch-Smith resolution. A large number of formal complaint and suspension cases are joined with the general investigation. The report says that the Hoch-Smith resolution had been urged by both sides as a reason for increasing or decreasing the present rate level on this commodity, the respondents contending that reductions in rates on agricultural products will necessitate an increase in rates on fuel oil and the shippers contending that the existing situation in this industry requires a reduction of the rates. These contentions, the examiners said, are not supported by the record; but certain of the rates were found to be unreasonable and unduly prejudicial and the report includes a complicated series of findings which are recommended in their place.

I. C. C. Overruled in Subiaco Route Case

The Supreme Court of the United States, in a decision rendered on January 2, has affirmed the decree of the district court for the western district of Arkansas which had issued an injunction against an order of the Interstate Commerce Commission requiring the Missouri Pacific to participate in a through route and joint rates for westbound freight over the Fort Smith, Subiaco & Rock Island, in spite of the fact that it had other routes between the same points by its own lines and other connections. The commission had issued the order at the request of the Subiaco, in order to improve its revenues, but without finding that the existing routes are too long or that the traffic covered by the order would be handled more advantageously over the proposed route. The court holds that the commission's order was repugnant to the rule prescribed by paragraph 4 of section 15 of the interstate commerce act which provides that in establishing through routes and joint rates the commisson shall not require a road, without its consent, to "short-haul" itself by embracing in such route substantially less than the entire line of its railroad between the termini of the proposed route, unless such route would be unduly circuitous. The court observes that the act does not give the commission authority to establish "all the through routes it may deem necessary or desirable in the public interest."

Criticises Lack of Railway Co-operation in Rate Cases

Fairman R. Dick, of Roosevelt & Son, New York, has addressed an open letter to the directors of all Western railroads on the subject of railway co-operation in the maintenance of rates. The letter reads in part, as follows:

"On our initiative the Security Holders' Committee for a Fair Return was organized in 1925, with W. Emlen Roosevelt of this firm as chairman. That committee took a prominent part in the Western Rate Case in 1926 and is now actively engaged in three cases before the Interstate Commerce Commission that vitally affect the revenues of roads in that section, viz., the Class Rates, Livestock and Grain cases. I have personally testified in these cases and have acquired a knowledge of the conditions which in the past seven years have caused this railroad group to make a worse showing than any other railroad group in the country.

"The long continued failure of the western trunk line roads even to approach a fair return is demonstrably due to a depressed rate condition in that section; and this depression of rates is undoubtedly

due not alone to the action of regulatory bodies but also to *the destructive policies of the roads themselves*, and to *the lack of harmony* which has prevented them from agreeing on a united and adequate rate program.

"This disharmony is revealed in striking fashion by a recent case involving a 'container tariff' filed by the Missouri Pacific. This case is so illustrative of the rate disputes that continually go on among these roads that I deem it proper to ask your personal consideration of the facts.

"In the summer of 1928 the Missouri Pacific proposed a tariff for shipment of freight in steel containers between St. Louis and ten other points southwest and west of that city. An essential feature of this tariff is that it bases rates on weight alone, without regard to the character or value of the freight.

"The proposed tariff was submitted to the Western Trunk Line Committee, which is the organization of traffic officials representing all roads in that territory. It was adversely reported on and was vigorously opposed by practically all the railroads represented on the Western Trunk Line Committee. Objections which have been made by representatives of other carriers to the proposed tariff include the following:

(1) That the whole system of classification of freight, on which the rate structure is based, might be disrupted by this tariff.
(2) That the rates proposed in the tariff would necessitate drastic reductions in existing rates not only on L.C.L. but, in many instances, on carload traffic.
(3) That for the most part the reduced rates under the tariff would benefit, not the individual shipper but the forwarding companies which act as intermediaries on container shipments.
(4) That the offer of the Missouri Pacific to carry freight on the basis of this tariff would seriously prejudice the decision of the Interstate Commerce Commission on the pending application of the western trunk line roads for increases in class rates amounting to $25,000,000 annually.
(5) That through the direct and indirect consequences of the tariff there would result a radical reduction of railroad net revenue in a territory where for years the return on railroad property has been grossly inadequate.

Mr. Dick proceeds to tell of the filing of this tariff by the Missouri Pacific, and its subsequent suspension after protest by other carriers. Continuing, he added:

"The result of these combined protests was the suspension of the tariff by the Interstate Commerce Commission, which on November 20, 1928 ordered hearings in the case. In this way a major controversy *between the carriers themselves* is about to proceed before the Interstate Commerce Commission. It should be added that on December 13, 1928, the Commission on its own motion ordered a general investigation of the 'container' method of shipment, bringing in all the Class I railroads of the country. This investigation has been consolidated with the Missouri Pacific case and hearings are set for February 6, 1929. . . .

"It is amazing, but true, that in the face of these conditions (inadequate earnings of the Western roads) and of the Commission's request for action, nearly two and a half years have elapsed without these roads being able to produce an adequate plan of rate of increases. The explanation lies in the kind of internecine warfare that has gone on continually among these carriers."

Equipment and Supplies

Locomotives

THE ILLINOIS CENTRAL is now inquiring for 17 eight-wheel switching locomotives.

THE CHESAPEAKE & OHIO is inquiring for 15 eight-wheel switching locomotives.

THE CANADIAN PACIFIC is inquiring for 20 locomotives of the 2-10-4 type.

THE CHICAGO & NORTH WESTERN has ordered 10 locomotives of the 4-8-4 type from the Baldwin Locomotive Works.

THE KWANG TUNG YUEH HAN (Canton, China) has ordered 2 locomotives of the 4-8-2 type from the Baldwin Locomotive Works.

THE ISLAND CREEK COAL COMPANY, Huntington, W. Va., has ordered 1 locomotive of the 2-8-0 type from the Lima Locomotive Works.

THE INTERNATIONAL RAILWAYS OF CENTRAL AMERICA have ordered 2 Mikado type locomotives from the Baldwin Locomotive Works.

THE CHICAGO, BURLINGTON & QUINCY has ordered 6 locomotives of the 2-10-4 type from the Baldwin Locomotive Works. The order for these locomotives was placed during the last week of December and was included in the total of locomotives ordered during 1928, as reported in the *Railway Age* of January 5, page 76.

Largest Locomotive Order Since 1926 is Placed by N. Y. C.

The New York Central has ordered 100 heavy freight locomotives from the American Locomotive Company, for delivery during the early part of 1929. The cost of these locomotives will amount to about $9,000,000.

These locomotives are duplicates of the Mohawk type, developed by the New York Central in 1925, when 100 locomotives of the same type were purchased. In August, 1928, 25 locomotives of this type were also purchased for service on the Cleveland, Cincinnati, Chicago & St. Louis.

The present order is the largest purchase of locomotives made by any railroad in the United States since early in 1926.

The order for these locomotives was placed during the last week of December and is included in the total of locomotives ordered during 1928, as reported in the *Railway Age* of January 5, page 78.

Freight Cars

THE CHESAPEAKE & OHIO is inquiring for 125 caboose cars.

THE ILLINOIS CENTRAL is inquiring for 100 flat bottom gondola cars of 50 tons' capacity.

THE PERE MARQUETTE is inquiring for 400 composite gondola cars and 1,000 box cars.

THE GENERAL ELECTRIC COMPANY is inquiring for 2 flat cars of 20 tons' capacity.

THE MISSOURI PACIFIC has ordered 20 air dump cars from the Western Wheeled Scraper Company.

THE READING COMPANY has ordered five air dump cars of 30-cu. yd. capacity, from the Koppel Industrial Car & Equipment Company.

THE TIMKEN ROLLER BEARING COMPANY has ordered one drop door, air dump car, of 35-cu. yd. capacity, from the Koppel Industrial Car & Equipment Company.

THE ATCHISON, TOPEKA & SANTA FE has ordered 500 refrigerator cars of 40 tons' capacity from the Pullman Car & Manufacturing Corporation.

THE PITTSBURGH STEEL COMPANY has ordered four drop door, air dump cars, of 30-cu. yd. capacity, from the Koppel Industrial Car & Equipment Company.

THE WESTINGHOUSE ELECTRIC & MANUFACTURING COMPANY has ordered one steel substation car of 40 tons' capacity, from the American Car & Foundry Company.

THE WHEELING & LAKE ERIE is inquiring for 100 steel underframe flat cars of 50 tons' capacity and from 250 to 1,000 all steel, flat bottom gondola cars, of 70 tons' capacity.

THE FISHER LUMBER CORPORATION, Memphis, Tenn., has ordered 20 skeleton logging cars, 20-ft. long and of 30 tons' capacity, from the American Car & Foundry Company.

THE MICHIGAN, LIMESTONE & CHEMICAL COMPANY has ordered 10 drop door, air dump cars, of 30-cu. yd. capacity, from the Koppel Industrial Car & Equipment Company.

THE LEHIGH VALLEY has ordered 300 automobile cars of 50 tons' capacity from the American Car & Foundry Company. Inquiry for this equipment was reported in the *Railway Age* of December 8.

THE MAINE CENTRAL is inquiring for 1,000 box cars. Alternate bids are wanted on all steel A. R. A. type cars of 50 tons' capacity, single sheathed A. R. A. 50 ton cars and 40 ton cars.

THE ATCHISON, TOPEKA & SANTA FE has ordered 500 single deck stock cars and 250 double deck stock cars from the Pennsylvania Car Company and 125 caboose cars from the American Car & Foundry Company. Inquiry for this equipment was reported in the *Railway Age* of December 8.

THE NEW YORK, NEW HAVEN & HARTFORD has been authorized by the Interstate Commerce Commission to issue equipment trust certificates to secure

funds for the construction of 1,591 box cars, 95 caboose cars, 25 flanged cars and 25 milk cars to be built in the railroad company's shops, also for the purchase of 20 multiple unit cars.

THE ILLINOIS CENTRAL is now inquiring for the following equipment:

750 hopper cars of 50 tons' capacity
750 hopper cars of 70 tons' capacity
200 flat cars of 50 tons' capacity
700 automobile cars of 40 tons' capacity, 40-ft. long
300 automobile cars of 40 tons' capacity, 50-ft. long

In the *Railway Age* of December 29 it was reported that the company had authorized the purchase of this equipment.

THE MISSOURI PACIFIC has placed orders for the following equipment:

500 stock cars of 40 tons' capacity from the General American Car Company
500 hopper cars of 70 tons' capacity from the Standard Steel Car Company
1,000 single sheathed box cars of 50 tons' capacity from the American Car & Foundry Company
60 caboose cars from the American Car & Foundry Company
750 automobile cars of 40 tons' capacity from the Mt. Vernon Car Manufacturing Company
250 automobile cars of 50 tons' capacity from the Mt. Vernon Car Manufacturing Company

Inquiry for this equipment was reported in the *Railway Age* of December 8.

Passenger Cars

THE NEW YORK, NEW HAVEN & HARTFORD—See item under freight cars.

THE SOUTHERN PACIFIC is inquiring for three observation cars and 10 lounge cars.

THE DELAWARE & HUDSON is inquiring for three combination baggage and mail cars.

THE UNION PACIFIC is inquiring for 25 coaches, 25 baggage cars and 5 horse-baggage-automobile cars.

THE ST. LOUIS-SOUTHWESTERN has ordered two Brill Model 55 passenger and baggage gasoline rail motor cars from the J. G. Brill Company.

THE CANADIAN NATIONAL is inquiring for fifteen express refrigerator cars. An order for seven car bodies for oil-electric rail motor cars has been given to the Canadian Car & Foundry Company. The power plants will be installed in the railroad company's shops.

THE LEHIGH VALLEY has ordered two gas-electric rail motor cars with baggage compartment, and five trailer cars, from the Osgood Bradley Car Company. The motor cars will be equipped with Electro-Motive power plants. Inquiry for this equipment was reported in the *Railway Age* of December 1.

THE MISSOURI PACIFIC has placed orders for the following equipment:

13 baggage and mail cars from the St. Louis Car Company
13 steel baggage cars, 70-ft. long, from the American Car & Foundry Company
11 steel coaches with smoking compartments, 70-ft. long, from the American Car & Foundry Company
2 steel cafe-lounge cars, 70-ft. long, from the American Car & Foundry Company
1 steel cafe-club-coach car, 70-ft. long, from the American Car & Foundry Company

Inquiry for this equipment was reported in the *Railway Age* of December 8.

Supply Trade

R. W. Ott has been appointed sales manager of the **Oesterlein Machine Company,** Cincinnati, Ohio.

The General Refractories Company, has opened a new district sales office at 40 Central street, Boston, Mass., in charge of **Nelson W. Bowman,** who was formerly in the New York Office.

The **Duff Manufacturing Company,** Pittsburgh, Pa., has purchased **A. O. Norton, Inc.,** Moline, Ill. The new company will be known as the **Duff-Norton Mfg. Company.**

The International Railways of Central America have moved their executive offices and purchasing department from 17 Battery Place to 11 Broadway, New York City.

N. H. Spencer, formerly representative of the **Pittsburgh Transformer Company,** has been appointed representative of the **Wagner Electric Corporation,** with headquarters at Dallas, Tex.

The **Universal Packing and Service Company,** Chicago, has changed its name to the **Spring Packing Corporation** and has moved its executive and sales offices to 310 S. Michigan avenue. **James S. Hearon** has been appointed vice-president and secretary of the new corporation.

Judd W. Spray has been appointed vice-president and general sales manager of the **Timken Roller Bearing Company,** Canton, Ohio. He has been general sales manager of the company since 1926; and previous to that he had been sales manager of the automotive division of the company in Detroit for several years.

J. E. Murray, formerly eastern and export sales manager for the Buda Company and later for the Kalamazoo Railway Supply Company, has opened an office as manufacturers' agent with headquarters at 50 Church street, New York. Mr. Murray will be engaged in the handling of both domestic and export business.

The name of the F. J. Lewis Manufacturing Company, producers of coal tar products since 1887, has been changed to the **International Combustion Tar & Chemical Corporation,** with offices at 200 Madison avenue, New York, and 2500 South Robey street, Chicago. This company is a subsidiary of the **International Combustion Engineering Corporation, New York.**

Arthur E. Blackwood, first vice-president of the **Sullivan Machinery Company,** Chicago, has been elected president to succeed **Frederick K. Copeland,** deceased. Mr. Blackwood entered the employ of the Sullivan Machinery Company in 1899, shortly after graduating from the Toronto University as a mechanical and electrical engineer. Later he was appointed manager of the eastern sales department with headquarters in New York. In 1922 he was elected first vice-president in charge of finances, with headquarters in Chicago, which position he has held until his recent election.

The Shepard Electric Crane & Hoist Company, including its Sprague division, and the Niles Crane Corporation have been combined under the name of **Shepard-Niles Crane & Hoist Corporation.** The Shepard plant at Montour Falls, N. Y., and the Niles plant at Philadelphia, Pa., will be continued in operation. The main office will be at Montour Falls. The officers of the new corporation are **Colonel Edward A. Deeds,** chairman of the board, **S. G. H. Turner,** chairman of the executive committee, **Frank A. Hatch,** president, **Sydney Buckley,** first vice-president, **James A. Shepard,** vice-president and **Robert T. Turner,** vice-president. To the board of directors will also be added from the Niles-Bement-Pond Company, **Colonel Leonard S. Horner,** president, and **Charles K. Seymour,** vice-president of that company. The three divisions of the new company will operate as the Shepard division, the Niles division and the Sprague division.

New Steel Castings Plant Proposed

The American Steel Foundries, through a subsidiary company which will be known as the General Steel Castings Corporation in which it is understood the Baldwin Locomotive Works and American Locomotive Company will be interested, will build a plant for the manufacture of large steel castings, on approximately 100 acres of land adjoining Baldwin Locomotive Works, at Eddystone, Pa. While no announcement has been made as to the official personnel of the new company, it is assumed it will be headed by R. P. Lamont, president of the American Steel Foundries.

In a recent interview, Mr. Lamont stated, "The steel casting industry developed in the region around Chester, Pa. at a time when the manufacturing industry in the country was largely east of the Alleghenies. While some of the old plants have been modernized, in a general way they were all started on a small scale and are not of sufficient size to handle the large work for which there has been a steadily growing demand in recent years. Construction of the plant will begin immediately and it is hoped to have it in operation before the end of next year."

THE CENTRAL VERMONT'S THROUGH EXPRESS TRAIN TO FLORIDA, carrying sleeping cars from Canadian cities, is this season to run over the Seaboard Air Line. Cars for Miami and points on the East Coast are run on Tuesday, Thursday and Saturday and cars for St. Petersburg and the West Coast, on Monday, Wednesday and Friday.

Construction

CHICAGO, ROCK ISLAND & PACIFIC.—This company plans the expenditure of approximately $25,000,000 during 1929 for new construction on its lines. It is expected that the construction of 146 miles of extensions, including 85 miles between Trenton, Mo., and Birmingham, and 61 miles between Gruver, Tex., and Liberal, Kan., will cost about $6,760,000. Approximately $16,000,000 will be expended for minor improvements to physical property at various points, including ballasting, strengthening of bridges, elimination of grade crossings, additional yard tracks and sidings, additions to shops and engine houses and new freight and passenger stations. In the latter category will be the construction of passenger platform canopies at Des Moines, Iowa, and a new freight station at Ottawa, Ill. Yard and terminal layouts will be improved at Blue Island, Ill., Armourdale, Kan., Pratt and Liberal and El Reno, Okla., at a total cost of $1,000,000. A new steel car repair shop will be constructed at El Reno to cost $370,000 and a freight terminal will be constructed at Omaha, Neb., at a cost of $240,000. About $250,000 will be spent for a continuation of the grade revision program on the Illinois division and about $400,000 will be spent for grade revision between Norwalk, Tex., and Perkins to accommodate a drainage district which has been established in Dallas county, Tex. The flood protection program for 1929 includes the improvement of the line along the White river in Arkansas and on the St. Louis-Kansas City division. Other major items of construction and their approximate cost include: Fire protection at 25 points, $100,000; work in connection with the straightening of the Chicago river at Chicago, $720,000; track elevation at Chicago, $168,000; water stations, $400,000.

DENVER & SALT LAKE WESTERN.—Examiner M. S. Jameson of the Interstate Commerce Commission, in a proposed report, recommends that the commission authorize this company to construct its proposed cut-off from Orestod to Dotsero, Colo., 41 miles, to connect the line of the Denver & Salt Lake via the Moffat tunnel with the line of the Denver & Rio Grande Western, thus affording a shorter route to Salt Lake City, but on condition that the D. & R. G. W. be permitted to operate on fair and reasonable terms over the cut-off and over the line east of Orestod. The examiner says that the construction of a competitive line by the D. & R. G. W., as suggested by it, would involve a duplicate investment in transportation facilities and that the carriers have indicated a willingness to enter into a contract, if the terms can be agreed upon.

LOS ANGELES & SALT LAKE.—A contract has been awarded to the Lynch-Cannon Engineering Company, Los Angeles, Cal., and Salt Lake City, Utah, for the construction of a railway and motor coach passenger station at Atlantic boulevard and Telegraph road, East Los Angeles, Cal. The total cost of this station is expected to approximate $100,000.

LOUISVILLE & NASHVILLE.—This company has authorized the construction of a 10-story office building at Louisville, Ky., which will adjoin the present building at Tenth street and Broadway in that city. The building will serve to consolidate, at one point, departments which are at present located at various points in Louisville. This project will involve an expenditure of about $750,000.

MISSOURI PACIFIC.—Additional expenditures totaling $2,096,000 have been authorized by L. W. Baldwin, president, for the protection of lines in Arkansas against damage by high water. This appropriation will be used for raising the grade above high water between Newport and Bradford, 16 miles, and for applying stone ballast and rip-rapping in the White and Cache river valleys between Bald Knob and Wynne. Between Newport and Bradford the present double track north of the White river will be raised for a distance of about 1½ miles and a second main track will be constructed between the White river and Grand Glaise, about 10 miles, with the grade line above the high water level. Stone ballasting and rip-rapping will be undertaken between McCrory and New Augusta, 9 miles, on the Bald Knob-Wynne line. When this construction is completed the total expenditure for flood protection since 1927 will be $5,025,000 of which $3,221,000 will have been spent in Arkansas.

NEW JERSEY, INDIANA & ILLINOIS.—A contract has been let to the Roberts and Schaefer Company, Chicago, for the construction of an electric direct locomotive coaling station at South Bend, Ind.

NEW YORK, NEW HAVEN & HARTFORD.—A contract has been awarded by this company to the Long Construction Company, Boston, Mass., for building the superstructure for an addition to its freight house at Fargo street in Boston. The addition will be 648 ft. long and 60 ft. in width, and will cost approximately $100,000. A contract also has been given to the Canter Construction Company, Inc., Boston, Mass., for work on additions, alterations, etc., to the present brick freight house at Roxbury, Mass., to provide a storage building, and for the construction of an automobile unloading platform 460 ft. in length. The total cost of the project will amount to about $90,000.

NORTHERN CALIFORNIA.—Examiner C. P. Howard of the Interstate Commerce Commission has recommended in a proposed report that the commission deny this company's application for authority for the construction of a line of about 17 miles from a connection with a logging road near Lake Almanor, Calif., to a connection with the Indian Valley near Crescent Mills., Calif.

PENNSYLVANIA.—This company has awarded a contract to the Fritz-Rumer-Cooke Company, Columbus, O., for the construction of concrete bridges with retaining walls on its line at Columbus, O. The project will cost approximately $560,000. A contract also has been given to the T. J. Foley Company, Pittsburgh, Pa., for the construction of an overhead bridge to eliminate a grade crossing at Columbia Cross Roads, Pa., at a cost of about $25,000. Another contract has been awarded to S. W. Shoemaker & Sons, of Harrisburg, Pa., for the construction of a signal cabin at Harrisburg, Pa.

READING.—This company plans construction and improvements which will involve an expenditure of approximately $35,000,000 during the year 1929, according to a recent statement by Agnew T. Dice, president of the road.

The largest sum to be spent will be for the electrification of the road in the metropolitan district of Philadelphia, for which the directors have appropriated $20,000,000. Work on this project is to be started in the spring.

Other projects which will be included in expenditures for improvement will include the completion of the North Broad street station, Philadelphia, at a cost of more than $2,000,000; a new commercial building to be erected on North Broad street, Philadelphia, for office and warehouse facilities, at a cost of approximately $4,000,000; a new bridge over the Susquehanna river at Muncy, Pa., to cost about $1,500,000; a passenger station at Pottstown; the erection of a new storehouse and other buildings at the Reading car shops, costing approximately $1,000,000; building of bridges at Pottstown, Pa., Reading, Pa., Wyomissing, Pa., East Greenville, Pa., and Tuckerton, Pa.; installation of the color light signals on the New York branch at an expenditure of about $700,000; erection of a new interlocking plant at Pottsville Junction, Pa.; improvements to the station at Harrisburg, Pa.; erection of coal yard facilities at Atlantic City, N. J., and a new water supply at Abrams, Pa.; extensions and changes to the freight house and the construction of two new coal yards in Philadelphia.

An extensive campaign for the elimination of grade crossings on the Reading lines also will be included in the expenditures for the year, one of the largest of which will be grade crossing eliminations through Manayunk, Pa.

ST. LOUIS SOUTHWESTERN.—Examiner Thomas F. Sullivan of the Interstate Commerce Commission has recommended, in a proposed report, that the commission authorize the construction of a line from a connection with the Gideon & North Island at Gideon, Mo., to a connection with the Deering Southwestern at Deering, Mo., 20 miles, and from Hornersville, Mo., to Leachville, Ark., 11 miles.

TEXAS CITY TERMINAL.—A contract for the construction of a two-story re-inforced concrete warehouse, to have dimensions of 120 ft. by 1,160 ft., at Texas City, Tex., has been let to C. R. Berry & Co., Houston, Tex. The total cost of the structure, including an automatic sprinkler system will be about $400,000.

Financial

ATCHISON, TOPEKA & SANTA FE.—*Bond of Panhandle & Santa Fe.*—The latter company has been authorized by the Interstate Commerce Commission to issue a general mortgage 6 per cent bond for $9,000,000, redeemable after ten years, to mature not latter than 2125. This bond will be delivered to the parent company, the Atchison, Topeka & Santa Fe, and will be pledged under that company's general mortgage and its adjustment mortgage.

ATCHISON, TOPEKA & SANTA FE.—*Bonds.*—The Interstate Commerce Commission has authorized this company to issue $3,577,000 of general mortgage bonds to bear interest at 4½ per cent and to mature in 1987. The proceeds of the issue will be used to meet a maturity of similar amount of the Milwaukee, Lake Shore & Western. The company is authorized to sell these bonds at the best price obtainable, but not less than 98, which would make the cost to the railroad 4.598 per cent.

CHESAPEAKE & OHIO—*Stock Issue.*—The Interstate Commerce Commission has assigned this company's application for authority to issue 300,000 shares of common stock at par, instead of 200,000 shares at $150 as authorized by the commission, for oral argument on January 29.

CHICAGO, INDIANAPOLIS & LOUISVILLE.—*Bonds.*—This company has applied to the Interstate Commerce Commission for authority to nominally issue $869,000 of first and general mortgage 6 per cent gold bonds, to be pledged as collateral for notes.

DENISON, BONHAM & NEW ORLEANS.—*Abandonment.*—This company has applied to the Interstate Commerce Commission for authority to abandon its line, from Bonham to Bona, Tex., 24.15 miles.

FORT WORTH & DENVER CITY.—*Acquisition.*—This company, a subsidiary of the Colorado & Southern, has applied to the Interstate Commerce Commission for authority to acquire control under lease of the property of the Fort Worth & Denver South Plains, which has recently built about 200 miles of line in Texas.

HILLSBORO & NORTH EASTERN.—*Notes.*—The Interstate Commerce Commission has authorized this company to issue $14,338 of promissory notes in lieu of a like amount of notes previously issued without authority and to renew or extend the maturity of these notes and of $13,600 additional, which have been authorized, to December, 1930.

LOUISVILLE & NASHVILLE.—*Acquisition.*—Examiners Mason and Davis of the Interstate Commerce Commission, in a proposed report, have recommended that the commission approve the acquisition of control by lease of the properties of the Louisville, Henderson & St. Louis, subject to a modification of the proposed 99-year lease by the insertion of a provision that minority stockholders dissatisfied with the terms may have the reasonable value of their stock fixed by arbitration with the inclusion of an undertaking on the part of the L. & N. to acquire such stock at the price so fixed. The proposed lease provides for the annual payment of $8 a share on the common stock and $5 a share on the preferred stock not owned by the lessee.

MISSOURI PACIFIC.—*Bonds.*—The Interstate Commerce Commission has authorized the issuance of $15,750,000 of first and refunding mortgage 5 per cent bonds, to be pledged as collateral for short-term notes.

NEW YORK, NEW HAVEN & HARTFORD.—*Equipment Trust Certificates.*—The Interstate Commerce Commission has authorized this company to assume obligation and liability for $2,610,000 equipment trust certificates which it will acquire and hold in its treasury until a more favorable market develops.

PITTSBURGH AND WEST VIRGINIA.—*Control of West Side Bell Authorized.*—The Interstate Commerce Commission has authorized this company to acquire the West Side Bell, of which it owns all the outstanding capital stock.

RAILWAY EXPRESS AGENCY, INCORPORATED.—*I. C. C. Hearing.*—The Interstate Commerce Commission has assigned for hearing on January 24 at Washington, before Director Mahaffie of the Bureau of Finance, this company's application for authority to issue 1,000 shares of stock and $35,000,000 of debentures and that of the participating railroads for authority to acquire control of the new company by purchase of its stock.

READING.—*Control of Mount Carmel.*—The Interstate Commerce Commission has denied the application of this company for authority to lease the Mount Carmel. The Reading has operated this property since 1907 under a lease which expired in 1927—operation since expiration being under terms of the old lease. The short line railroad is owned by a colliery company which is responsible for all its traffic. The commission objects to the proposal in the new lease which would raise the rental to a point where the yield on the investment would be considerably greater than a fair return.

SEABOARD AIR LINE.—*Bonds.*—This company has applied to the Interstate Commerce Commission for authority to issue $1,512,000 first and consolidated mortgage six per cent bonds to reimburse it for retirement of a similar amount of equipment trust obligations and to pledge as collateral for notes.

SEABOARD AIR LINE.—*Bonds of Tampa & Gulf Coast.*—The Interstate Commerce Commission has authorized the Tampa company to issue $600,000 of 25-year 6 per cent bonds to be delivered to the Seaboard in partial satisfaction of indebtedness. This indebtedness was represented to be $625,975, but the commission finds $13,728 of carrying charges on a tract of land purchased by the Tampa from another Seaboard subsidiary, the Southeastern Investment Company, and excludes this sum from the indebtedness of the Tampa to the Seaboard authorized to be partially satisfied by this bond issue.

SOUTHERN PACIFIC. — *Valuation.* — A brief filed in support of the protests against the Interstate Commerce Commission's tentative valuations of properties in the Southern Pacific system states its claims for an aggregate value for the properties included, 13,049 miles, of $1,375,000,000 as compared with a total of $613,000,000 shown in the tentative reports. This does not include the Texas and Louisiana lines which are covered in a separate valuation docket. A substantial portion of the difference of $762,000,000, according to the brief, is occasioned by the application of different principles and methods by the Bureau of Valuation that those for which the carriers contend. The major items included in the $762,000,000 are: Claims relating to going concern value exceeding $85,000,000; claims for deferred construction costs exceeding $11,000,000; claims for additional elements of value attaching to lands, excluded street areas and rights in public domain exceeding $202,000,000; claims for erroneous deduction for depreciation of physical properties based on the Bureau's percentage of depreciation applied to the carrier's cost of reproduction new, exceeding $146,000,000; and claims approximating $18,000,000 representing land erroneously classified as non-carrier. These specified claims exceed $462,000,000. The remaining difference amounting to $300,000,000 between the values claimed by the carriers and the values allowed are included in claims involving questions of fact as well as the application of principles. Under the head of "going concern value" the carriers claim $20,196,641 for value of trained personnel, $1,553,145 for value of records, $5,520,000 for value of rate structure, $35,000,000 for value of attached business, and $20,833,000 for value of consolidation.

ST. LOUIS SAN FRANCISCO—*Bonds.*—The Interstate Commerce Commission has authorized this company to issue $8,000,000 of consolidated mortgage 4½ per cent bonds series A to be pledged and repledged as security for short term notes.

ST. PAUL BRIDGE & TERMINAL.—*Stock.*—The Interstate Commerce Commission has authorized this company to issue not exceeding $398,000 of capital stock to be sold at par to its present stockholders to meet a maturity of $400,000 6 per cent bonds—the remaining $2,000 to be advanced from the treasury.

THE WESTERN PACIFIC.—*Bonds.*—The Interstate Commerce Commission has authorized this company to issue $5,000,000 of five per cent first mortgage bonds series A, to mature in 1946 and to sell these bonds by public sale to the highest bidder at not less than 97½.

WABASH.—*Acquisition*—Examiner Sullivan of the Interstate Commerce Commission has recommended that this company be authorized to acquire control of the Lake Erie and Fort Wayne by stock purchase under condition that it divide its holdings equally with the New York Central, the New York, Chicago & St. Louis and the Pennsylvania.

WABASH.—*Dividends on Class A Stock.*—The United States Circuit Court of Appeals on January 7 at New York granted an injunction against the payment of dividends on Class B preferred and common stock of this company until payment was made on lapsed dividends on the Class A preferred. The Class A is not a cumulative stock, but is entitled to dividends up to 5 per cent before payments are made on Class B preferred and common. Papers filed in the Court of Appeals set forth that, on May 1, 1927, the railway company had outstanding 690,000 shares of the preferred. A stock with a par value of $100 each, 24,000 preferred B shares and 565,000 shares of common stock. It is alleged that no dividend was paid on preferred A stock from October, 1915, to Jan. 29, 1917, when, and quarterly thereafter, a 1 per cent dividend was paid to April 30, 1918, inclusive. No further dividends, it is set forth, were paid on that stock until May 25, 1925, on which date and quarterly thereafter a dividend of 1¼ per cent was paid. It was alleged further that earnings available for dividends on the preferred A stock were retained by the railway company, or added to its surplus for working capital and improvements. The court held that noncumulative stocks were dependent for dividends upon the earnings of a particular year. However, if earned but not paid in a particular year, then such earnings must remain a credit to the preferred stock to be disposed of before payments may be made on junior stocks.

Average Prices of Stocks and of Bonds

	Jan. 8	Last week	Last year
Average price of 20 representative railway stocks.	130.55	131.61	119.28
Average price of 20 representative railway bonds..	92.99	92.83	97.53

Dividends Declared

Atchison, Topeka & Santa Fe.—Common, $2.50, quarterly, payable March 1 to holders of record January 25.

Carolina, Clinchfield & Ohio.—Common, 1 per cent, quarterly, payable January 10 to holders of record December 31a.

Delaware, Lackawanna & Western.—$1.50, quarterly; Extra, $1.00, both payable January 21 to holders of record January 5.

Little Schuylkill Navigation, Railroad & Coal Co.—$1.25, payable January 15 to holders of record December 15 to January 15.

Nashville, Chattanooga & St. Louis.—$3.50, semi-annually, payable January 19 to holders of record February 1.

Norfolk & Western.—Adjustment Preferred, $1.00, quarterly, payable February 19 to holders of record January 31.

Pennsylvania Company.—3 per cent, semi-annually, payable December 31 to holders of record December 28.

Philadelphia & Trenton.—2½ per cent, quarterly, payable January 10 to holders of record January 1 to January 11.

Reading.—Common, $1.00, quarterly, payable February 14 to holders of record January 17.

Virginian.—Preferred, $3.00, semi-annually, payable February 1 to holders of record January 19.

Wabash.—Convertible Preferred B, 5 per cent, payable February 6 to holders of record December 31.

Officers

Executive

Clinton D. Sipe, assistant comptroller of the Chicago & Alton, has been promoted to assistant to the receivers, with headquarters as before at Chicago.

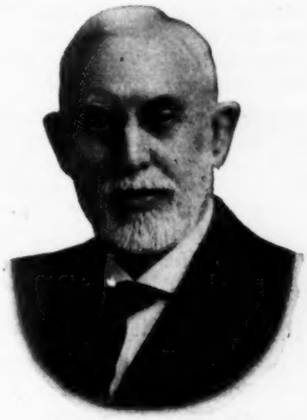
Robert L. Sifford, freight agent for the Union Pacific at Kansas City, Mo., has been elected president of the Laramie, North Park & Western, with headquarters at Laramie, Wyo.

William M. Whitenton, formerly vice-president in charge of operation of the Missouri-Kansas-Texas, has been appointed, for a limited period, assistant vice-president of the Midland Valley and the Kansas, Oklahoma & Gulf, in charge of transportation and maintenance of way matters. Mr. Whitenton will have headquarters at Muskogee, Okla.

W. H. Dalton, assistant to the president of the Chicago & North Western, with headquarters at Chicago, has also been elected president of the Superior Coal Company, a mining subsidiary of the railroad, succeeding **George M. Davidson,** retired. **George W. Hand,** assistant to the president of the North Western, with headquarters at Chicago, has also been elected vice-president of the Superior Coal Company. **F. S. Pfhaler,** general manager of the Superior Coal Company, has been elected vice-president and general manager, with headquarters as before at Chicago.

Fred B. Miller, who on January 1, resigned as president of the Laramie, North Park & Western, with headquarters at Laramie, Wyo., has been in railway service for more than 42 years. He was born on September 28, 1866, at Galesburg, Ill., and entered railway service at the age of 18 years as a brakeman on the Peoria & Farmington (now part of the Minneapolis & St. Louis). In June, 1885, he became a train baggageman on the Toledo, Cincinnati & St. Louis (now part of the New York Chicago & St. Louis), being advanced to conductor later in the same year. From October, 1886, to September, 1917, Mr. Miller served successively as brakeman, conductor, trainmaster and superintendent on the Chicago, Burlington & Quincy, as superintendent of the Colorado Midland, superintendent of the Denver, Northwestern & Pacific (now the Denver & Salt Lake) and as assistant superintendent of the Moffat Coal Company. In November, 1918, he was appointed general superintendent of the Colorado, Wyoming & Eastern, later becoming vice-president and general manager and president of that railroad and its successor, the Laramie, North Park & Western.

William Wright Baldwin, vice-president in charge of the tax department of the Chicago, Burlington & Quincy, with headquarters at Chicago, retired from active duty at his own request on January 1, after nearly 50 years of continuous service with that company. Mr. Baldwin will remain with the company in an advisory capacity with the title of vice-president retired, and the supervision of matters pertaining to taxation has been transferred to the law department. He was born on September 28, 1845, at Keosauqua, Iowa, graduated



William Wright Baldwin

from the State University of Iowa in 1866, from the law school of that university in the following year and was admitted to the bar in 1868. During the Civil War he served as a private in Company D of the Forty-fourth Iowa Infantry. In 1879 he entered railway service as land commissioner for the Iowa land department of the Burlington. Subsequently he was president of the St. Louis, Keokuk & Northwestern and other subsidiaries of the Burlington and one of the promoters of the Burlington & Northwestern (also now a part of the Burlington). In 1890 Mr. Baldwin was appointed land commissioner of the Nebraska land department of the Burlington and in the following year he was promoted to assistant to the president, with headquarters at Burlington, Iowa. He was elected vice-president, with headquarters at Burlington, and with supervision over matters pertaining to taxation, land, telegraph and various corporate and governmental relations of the company in 1909. His headquarters were moved to Chicago in 1920. During federal control of the railroads he served as federal treasurer of the Burlington.

Financial, Legal and Accounting

H. L. Stuntz, assistant to the receivers of the Chicago & Alton, has been appointed comptroller, with headquarters at Chicago, succeeding **E. S. Benson,** deceased.

Elmer R. Loomis, special assistant to the comptroller of the Central Vermont for the past eight years, has been

appointed assistant comptroller, effective January 1, succeeding **H. Webber,** deceased.

The office of comptroller of the Wheeling & Lake Erie and the Lorain & West Virginia has been abolished and the auditor, **J. A. McCort,** now has charge of all accounting matters of the two companies.

George A. Walker, assistant treasurer of the Pennsylvania and its subsidiary companies, retired from active railroad service on January 1. Mr. Walker has been in the service of the Pennsylvania for 41 years and has been assistant treasurer since 1903.

James O. Clifford, auditor of passenger accounts of the Chicago & North Western, with headquarters at Chicago, retired from active railway service on January 1, at the age of 72. Mr. Clifford had been in the service of the North Western for more than 55 years, 33 years of which he served as auditor of freight accounts. He had been auditor of passenger accounts since January, 1921.

N. W. Bond, of Bond, Curtis, Hall & Foster, New Orleans, La., has been appointed general counsel of the Louisiana Southern, succeeding **George Janvier,** who retired from railway law practice on December 31 to become judge of the Court of Appeals of Louisiana. **William H. Talbott,** also of Bond, Curtis, Hall & Foster, has been appointed general attorney, with headquarters at New Orleans. **Robert H. Kelley,** of Andrews, Streetman, Logue & Mobley, Houston, Tex., has been appointed special counsel.

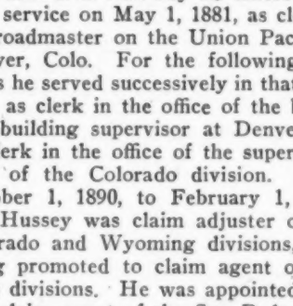
George W. Streicher, auditor of freight accounts of the Oregon Short Line, with headquarters at Salt Lake City, Utah, has been transferred to the Union Pacific unit of the Union Pacific System, with headquarters at Omaha, Neb., succeeding **Herman B. Ochiltree,** who retired in accordance with the pension rules of the company on December 31 after 38 years of railway service, 36 of which were with the Union Pacific. **Emil B. Conrad,** special accountant in the office of the general auditor of the System at Omaha, has been promoted to auditor of freight accounts of the Oregon Short Line, replacing Mr. Streicher.

Thomas Balmer, assistant general counsel of the Great Northern, with headquarters at St. Paul, Minn., has been promoted to western counsel, with headquarters at Seattle, Wash. **Fletcher Rockwood, James P. Plunkett** and **James H. Mulally** have been appointed general attorneys, with headquarters at St. Paul. **R. F. Berg** and **Alfred J. Clynch** have been appointed attorneys, with headquarters at St. Paul and Seattle respectively. **R. J. Hagman,** assistant general counsel at St. Paul, will continue to supervise commerce and freight claim matters and in addition will handle correspondence regarding contracts and right-of-way and tax matters.

Emery C. Bates, who has been elected treasurer of the Western Pacific, with headquarters at San Francisco, Cal., has been in the service of that railroad for more than 18 years. He was born at Colorado Springs, Colo., on November 20, 1881, and after graduating from the High school in that city in 1900 he attended Colorado College in 1901 and 1902. Mr. Bates entered railway service in May, 1906, on the Atchison, Topeka & Santa Fe at Colorado Springs and in November of the same year he became a clerk on the Southern Pacific at San Francisco, then being advanced to paymaster in April, 1907, and to cashier in November, 1907. In September, 1910, he was appointed cashier on the Western Pacific and in January, 1920, he was promoted to assistant treasurer, a position he held until his recent election to treasurer.

W. C. Hussey, general claim agent of the Los Angeles & Salt Lake, with headquarters at Los Angeles, Cal., retired from active service on December 31 after more than 47 years with the Union Pacific and its subsidiaries. Mr. Hussey was born on September 4, 1858, at Stoughton, Mass., and after attending high school in that city he entered railway service on May 1, 1881, as clerk to the roadmaster on the Union Pacific at Denver, Colo. For the following nine years he served successively in that position, as clerk in the office of the bridge and building supervisor at Denver and as clerk in the office of the superintendent of the Colorado division. From October 1, 1890, to February 1, 1898, Mr. Hussey was claim adjuster on the Colorado and Wyoming divisions, then being promoted to claim agent on the same divisions. He was appointed general claim agent of the San Pedro, Los Angeles & Salt Lake (now the Los Angeles & Salt Lake) on January 15, 1904.

Arthur R. Seder, who has been promoted to general auditor of the Chicago, St. Paul, Minneapolis & Omaha, with



Arthur R. Seder

headquarters at St. Paul, Minn., has been in the service of that railway for nearly 11 years. He was born at Minneapolis, Minn., on September 25, 1889, and graduated from the University of New Mexico in 1911. From 1911 to 1918, Mr. Seder was for two years principal of the High School at Carlsbad, N. M., and for five years principal of the High School at Clovis, N. M. He entered railway service on April 30, 1918, as a clerk in the accounting department of the Omaha at St. Paul and on May 1, 1920, he was advanced to general accountant. On April 1, 1924, he was promoted to auditor of disbursements, with headquarters as before at St. Paul. His further promotion to general auditor became effective on January 1.

Charles Jensch, comptroller of the Chicago, St. Paul, Minneapolis & Omaha, who has also been appointed comptroller of the Chicago & North Western, has been in the service of the former railway for more than 38 years. He was born at Milwaukee, Wis., on May 6, 1873, and began railway work on July 1, 1890, as an office boy on the Omaha. For the following 20 years he advanced through the position of office boy and various other junior po-

Charles Jensch

sitions in the accounting department to that of chief clerk to the comptroller and on May 1, 1910, he was promoted to general auditor, with headquarters at St. Paul, Minn. Mr. Jensch has been comptroller of the Omaha, with the exception of the period from January 1, 1918, to February 28, 1920, when he was federal auditor of the Omaha during federal control, since May 24, 1916. His promotion to comptroller of both roads, with headquarters at Chicago, became effective on January 1.

Operating

Howard O. McAbee, secretary to the vice-president of the Baltimore & Ohio, has been appointed inspector of passenger service, with headquarters at Baltimore, Md.

Harry H. Henderson, comptroller of the Wheeling & Lake Erie and the Lorain & West Virginia, has been ap-

pointed assistant general manager, with headquarters as before at Cleveland, Ohio.

M. F. Clune, in addition to his duties as trainmaster of the Delaware & Hudson, has also been appointed assistant superintendent of the Pennsylvania division of that road, a newly created position, effective January 2.

W. Garland has been appointed assistant superintendent of the Ottawa division of the Canadian Pacific, with headquarters at Ottawa, Ont., succeeding **M. W. Bard,** who has retired on account of ill health.

C. D. Notgrass, trainmaster on the Middle division of the Atchison, Topeka & Santa Fe, with headquarters at Abilene, Kan., has been transferred to the Southern Kansas division, with headquarters at Chanute, Kan. **H. S. Nelson** has been appointed trainmaster of the Strong City, Minneapolis and Salina districts of the Middle division, replacing Mr. Notgrass.

A. W. Smallen, general supervisor of safety and fire prevention of the Chicago, Milwaukee, St. Paul & Pacific, has been appointed special representative of the vice-president in charge of operation, in charge of fire prevention matters, Boy Scout work, and such supervision of safety and other matters as may be assigned, and with headquarters as before at Chicago.

G. C. Harper, superintendent of transportation of the Montour, with headquarters at Coraopolis, Pa., has been appointed general superintendent, with supervision over transportation and maintenance departments, with headquarters at Pittsburgh, Pa. **James Nagel** has been appointed superintendent of transportation at Coraopolis succeeding Mr. Harper.

E. Sullivan, trainmaster on the Colorado division of the Missouri Pacific at Hoisington, Kan., has been promoted to assistant superintendent, with headquarters at Pueblo, Colo., succeeding **C. W. Pace,** who has been appointed trainmaster of the River, Independence, Lexington and Bagnell districts, with headquarters at Jefferson City, Mo. Mr. Sullivan will be in charge of both maintenance of way and transportation and the position of trainmaster at Hoisington has been abolished. The position of assistant division engineer of the Colorado division, formerly held by **Louis Winship,** has been abolished.

M. J. Flanigan, superintendent of the Iowa division of the Chicago, Milwaukee, St. Paul & Pacific, with headquarters at Marion, Iowa, has been promoted to assistant to the general managers of the Lines East and Lines West, in charge of the safety first bureau, with headquarters at Chicago. **L. F. Donald,** assistant superintendent of the Chicago Terminals division, wtih headquarters at Chicago, has been promoted to superintendent of the Terre Haute division, with headquarters at Terre Haute, Ind., succeeding **A. J. Elder,** who has been transferred to the Iowa division, replacing Mr. Flanigan. **C. E. Elliott** has been appointed assistant superintendent of the Chicago Terminals division, succeeding Mr. Donald.

R. P. Russell, superintendent of the Philadelphia Terminal division of the Pennsylvania, with headquarters at W. Philadelphia, Pa., has been transferred in the same capacity to the Maryland division, with headquarters at Wilmington, Del., succeeding **James Bukelew,** promoted. Mr. Russell will in turn be succeeded by **J. C. Rill,** now superintendent of the Columbus division, Western region. **R. C. Miller,** superintendent of the Toledo division with headquarters at Toledo, O., succeeds Mr. Rill as superintendent of the Columbus division, with headquarters at Columbus, O. **C. F. Lingenfelter,** assistant superintendent of the New York division, with headquarters at Jersey City, N. J., has been appointed superintendent of the Toledo division, succeeding R. C. Miller.

James Buckelew, superintendent of the Maryland division of the Pennsylvania, with headquarters at Wilmington, Del., has been appointed general superintendent of telegraph, with headquarters at Philadelphia, Pa., succeeding **J. C. Johnson,** who retired on January 1. Mr. Buckelew was born on October 7, 1864, in Jamesburg, N. J. He was educated at Princeton University and entered railway service on July 18, 1885, as rodman in the Engineer Corps of the Pennsylvania. He was promoted to the position of assistant supervisor in May, 1888, later serving as supervisor on the Tyrone, Philadelphia and Pittsburgh divisions. In January, 1900, he was promoted to division engineer of the Renovo division, later serving in the same capacity on the Tyrone and Pittsburgh divisions. Three years later he was appointed engineer maintenance of way of Philadelphia, Baltimore & Washington, now a part of the Southern Grand division and in June 1906, he was appointed superintendent of the Central Division, subsequently serving in the same capacity on the Allegheny, then the West Jersey & Seashore, and the Maryland division. His appointment as general superintendent of telegraph became effective January 1.

Gustav Metzman, who has been appointed manager of freight transportation of the New York Central lines, with headquarters at New York, was born on June 23, 1886, at Baltimore, Md. He entered railway service with the Baltimore & Ohio on June 3, 1903, serving in various positions. He was supervisor of transportation with the Eastern Freight Accumulation Conference from March 18 to July 1, 1916, and from the latter date until February 1, 1917, he was supervisor of transportation with the Eastern Presidents Conference. He then became supervisor of passenger transportation for the Baltimore & Ohio. Mr. Metzman was on the staff of the Regional director, Eastern region, United States Railroad Administration from January 1, 1918 until February 1, 1920, at which time he was appointed chief car distributor of the Baltimore & Ohio. On March 16, 1920, Mr. Metzman entered the service of the New York Central as transportation assistant to the senior vice-president. He was promoted to the position of transportation assistant to the president on March 1, 1922, serving in that capacity until January 1, when his appointment as manager of freight transportation became effective.

Charles F. Smith, who has been appointed manager of passenger transportation of the New York Central lines, with headquarters at New York, was born on June 17, 1873, in New York City. He entered the service of the New York Central & Hudson River on November 11, 1886, as messenger in the telegraph office, later serving as mail boy, clerk in the superintendent's office, stenographer to the general superintendent and clerk and timekeeper on the Hudson Division. From 1893 to 1895, Mr. Smith was secretary to the general manager and on the latter

Charles F. Smith

date he was appointed chief clerk to the superintendent of the Western division, at Buffalo, N. Y. He served in the same capacity in the general superintendent's office from 1898 to 1902, then being appointed superintendent of passenger transportation. The following year he was appointed assistant general superintendent and in 1906 he was promoted to the position of general superintendent of the Eastern district. From 1910 to 1928, Mr. Smith was general superintendent of passenger transportation, which position he held at the time of his recent appointment. For a short period during the World War Mr. Smith acted as general manager of transportation of the American Railway Express Company.

Lloyd F. Donald, who has been promoted to superintendent on the Chicago, Milwaukee, St. Paul & Pacific, with

headquarters at Terre Haute, Ind., has been connected with the operating department of that railway for 16 years. He was born on April 4, 1894, at Savanna, Ill., and after graduating from high school at that point in June, 1911 he entered railroad service in June, 1912 as a roundhouse clerk on the Milwaukee at Savanna. For the following five years he served in that capacity as roadmaster's clerk at Elgin, Ill., as trainmaster's timekeeper at Savanna and as clerk in the office of the superintendent at Milwaukee, Wis, From June 1, 1917, to February 1, 1921 Mr. Donald acted as chief clerk to the division superintendent at Milwaukee, at Green Bay, Wis., and at Sioux City, Iowa. He then became chief clerk to the assistant general manager at Chicago and on October 15, 1922, he was advanced to trainmaster on the Chicago Terminal. Later he was transferred to Sioux City, to the St. Paul (Minn.) terminal and to Montevideo, Minn. On November 1, 1926, he was promoted to assistant superintendent at Terre Haute, where he remained until December 1, 1928, when he was transferred to the Chicago Terminal. His promotion to superintendent at Terre Haute became effective on January 1.

Traffic

F. C. Foley has been appointed assistant general agent in the freight department of the Wabash at New York.

L. F. McFarland, commercial agent for the Chesapeake & Ohio at Louisville, Ky., has been promoted to general agent at the same point.

Frank A. Shaw, commercial agent on the Illinois Central at New Orleans, La., has been promoted to assistant general freight agent, with headquarters at the same point.

W. F. Bollman has been appointed assistant general freight agent of the Baltimore & Ohio, with headquarters at Pittsburgh, Pa., succeeding **A. L. Doggett** promoted.

L. A. Clapp has been appointed division freight and passenger agent of the New York Central, with headquarters at Corning, N. Y., succeeding **I. F. Rasp,** promoted.

F. E McGrath has been appointed division freight agent of the New York Central, with headquarters at New York, succeeding **W. R. Dallow,** promoted.

P. A. Frye, general agent for the Mississippi Central at Shreveport, La., has been promoted to assistant general freight agent at the same point and the position of general agent has been abolished.

E. J. Gleason, division passenger agent on the Baltimore & Ohio at Toledo, Ohio, has been promoted to assistant general passenger agent at Detroit, Mich.

J. H. McClure, assistant general freight agent on the Southern Pacific at Phoeniz, Ariz., has been promoted to general freight and passenger agent, with headquarters at the same point, succeeding **E. J. Fenchurch,** deceased.

N. V. Hutchinson, general freight and passenger agent of the Columbus & Greenville, has been promoted to traffic manager and assistant to the president, with headquarters as before at Winona, Miss.

E. J. Dowie, assistant general freight agent of the New York Central, has been appointed manager of industrial development of the lines west of Buffalo, N. Y., and Clearfield, Pa., and the Ohio Central Lines, with headquarters as before at Cleveland, Ohio.

D. L. Moorman, assistant general passenger agent of the Baltimore & Ohio at Detroit, Mich., has been transferred in the same capacity to Washington, D. C., succeeding **E. D. Ainslie,** who has been promoted to the position of general passenger agent at New York.

C. F. Groom, commercial agent of the Gulf, Mobile & Northern, with headquarters at New Orleans, La., has been promoted to the position of district freight agent, with headquarters at Pittsburgh, Pa., succeeding **R. M. Chittick,** deceased.

Mark F. Johnston, chief clerk to the general baggage agent of the Union Pacific lines west of Ogden, Utah, at Omaha, Neb., has been promoted to general baggage agent of the Los Angeles & Salt Lake, with headquarters at Los Angeles, Cal., succeeding **Guy Adams,** deceased.

J. H. Day, acting freight traffic manager of the New York, Chicago & St. Louis, has been promoted to freight traffic manager, with headquarters at Cleveland, Ohio. **R. A. Williamson,** acting general freight agent, has been promoted to general freight agent, with headquarters at Cleveland.

Walter R. Dallow, who has been appointed manager of industrial development of the New York Central, with headquarters at New York, was born on November 29, 1883, at Roxbury, Mass. He was educated in the public and high schools and entered the service of the New York Central in January, 1906, as stenographer. He was appointed secretary to the vice-president in charge of traffic, New York Central System, in November, 1907, and in December, 1919, became chief clerk to the vice-president, New York Central lines. Mr. Dallow was appointed division freight agent in June, 1925, in which position he served until his recent appointment as manager of industrial development.

Thomas H. Gurney, who has been appointed passenger traffic manager of the Chesapeake & Ohio, with headquarters at Richmond, Va., has been in the railroad field for approximately 33 years. His first work was with the Cleveland, Cincinnati, Chicago & St. Louis at Cincinnati, in 1895. The following year he went to the Cincinnati, Hamilton & Dayton, where he remained until 1903, occupying various positions from stenographer to chief clerk in the passenger department. In 1903 he entered the service of the Chicago, Cincinnati & Louisville and three years later he was appointed general passenger agent of that road, with

Thomas H. Gurney

headquarters at Cincinnati. He was transferred in the same capacity to Chicago in 1907, remaining with that road until it was absorbed by the Chesapeake & Ohio in 1910. From 1910 to 1917 he was district passenger agent for the Chesapeake & Ohio, representing the passenger department in Chicago and western territory. He was promoted to assistant general passenger agent at Cincinnati in 1917, remaining in that position until 1924, when he became general passenger agent, with headquarters at Richmond, Va., serving in that capacity until his recent appointment as passenger traffic manager.

George E. Merchant, who has been appointed coal freight agent of the Buffalo, Rochester & Pittsburgh, with headquarters at Rochester, N. Y., was

George E. Merchant

born on June 4, 1905, in Rochester. He was educated at Peddie Institute, Hightstown, N. J., and prior to entering railway service served in the en-

gineering department of the Merchants' Despatch Transportation Company, as manager of the Rochester Coal & Coke Company and as a representative of the Payne Coal Company, of Wilkes-Barre, Pa. Mr. Merchant's appointment as coal freight agent of the Buffalo, Rochester & Pittsburgh marks his entrance into railroad work.

John W. Rimmer, assistant to the vice-president of the Boston & Maine, with headquarters at Boston, Mass., has been appointed assistant freight traffic manager, with the same headquarters. Mr. Rimmer was born on June 10, 1890, at Brookline, N. H. He was educated in the public and high schools of Wal-

John W. Rimmer

don, Mass., and entered the service of the Boston & Maine in June, 1907, as office boy and messenger. In January, 1912, he was appointed secretary to the freight traffic manager and three years later he was appointed traveling freight agent. He was promoted to the position of assistant general freight agent in April, 1917, and in January, 1922, he became assistant to the vice-president in charge of traffic, in which capacity he served until his recent appointment as assistant freight traffic manager.

James R. MacAnanny, general freight agent of the Boston & Maine, with headquarters at Boston, Mass., has been appointed assistant freight traffic manager, with the same headquarters. Mr. MacAnanny was born on February 26, 1891, at Somerville, Mass. He entered the service of the Boston & Maine in July, 1905, as clerk in local freight office at Boston. He was transferred to the general freight office in May, 1908. The following year he became secretary to the vice-president. From 1911 to 1912, Mr. MacAnanny assisted in reconstructing the Boston & Maine rate structure under the guidance of the New Hampshire Public Service Commission at Concord, N. H. He was put in charge of the Boston & Main tariff bureau in July, 1915, when the joint New England Tariff Bureau was separated. In December, 1917, he was appointed chief of the tariff bureau and in January, 1922, he was promoted to the position of assistant general freight agent, four years later being appointed general freight agent, in which capacity he served until January 1, 1929, when his appointment as assistant freight traffic manager be-

James R. MacAnanny

came effective. Mr. MacAnanny has been in charge of making rates, tariffs and divisions of the Boston & Maine during the past 15 years.

Patrick J. Mullaney, general freight agent of the Boston & Maine, in charge of service and solicitation, with headquarters at Boston, Mass., has been appointed assistant freight traffic manager, with the same headquarters. Mr. Mullaney was born on December 30, 1892, in Somerville, Mass. He was educated at St. Joseph's high school, and entered railway service in February, 1910, with the Boston & Maine. He served in

Patrick J. Mullaney

various clerical positions until 1919, when he was appointed traveling freight agent. He was appointed chief clerk to the vice-president in June, 1923, and in November of the following year he was promoted to the position of assistant general freight and passenger agent at Portland, Me. In January, 1926, he was appointed assistant general freight agent at Boston, in charge of off line agencies, and in July of the same year he was promoted to the position of general freight agent at the same point, which position he held at the time of his recent appointment.

James N. Gall, assistant general freight agent of the Boston & Maine, with headquarters at Boston, Mass., has been appointed general freight agent, with the same headquarters. Mr. Gall was born on December 23, 1886, in Scotland. He was educated at London Collegiate Institute, London, Ont., and in May, 1905, entered the service of the Central Vermont as clerk in a local freight office. He was general agent in charge of operation and traffic on the Montpelier & Wells River at Barre, Vt., from 1908 to March, 1918. He served as first lieutenant in the 36th Engineers, A. E. F., from March, 1918, to August, 1919, returning in September, 1919, to the Montpelier &

James N. Gall

Wells River as general agent. Mr. Gall entered the service of the Boston & Maine in November, 1920, as general western agent at Chicago, later coming to New York as general agent. From January, 1926, to September of the following year, he was district manager of the same road at Worcester, Mass., then becoming assistant general freight agent at Boston, which position he held at the time of his recent appointment as general freight agent.

Charles C. Taylor, who has been promoted to assistant freight traffic manager of the Mobile & Ohio, with headquarters at Memphis, Tenn., has been in the service of that railway for more than 35 years. He was born on May 7, 1870, at Pocahontas, Tenn., and entered railroad service on October 10, 1893, as local agent on the M. & O. at Falcon, Tenn. Four years later he became chief clerk and cashier at Jackson, Tenn., and in September, 1902, he was advanced to soliciting freight agent at the same point. For a short time in the following year Mr. Taylor served as freight and passenger agent at Union City, then being returned to Jackson as local freight agent. In September, 1908, he was advanced to traveling freight agent at Jackson and in the next year he was further advanced to commercial agent at the same point, where he remained until February, 1912, when he was trans-

ferred to Memphis. Mr. Taylor was promoted to assistant general freight agent at Memphis on August 1, 1913,

Charles C. Taylor

and his promotion to assistant freight traffic manager became effective on January 1.

Lucien Snow, who has been appointed freight traffic manager of the Maine Central and the Portland Terminal Company, with headquarters at Portland, Me., was born in that city on December 4, 1885. He was educated in the public schools and at Harvard College,

Lucien Snow

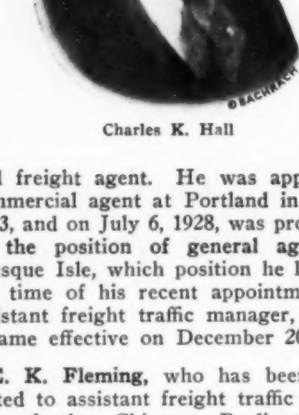
entering railroad service as a clerk in the office of the auditor of freight accounts in November, 1909. He was transferred to the office of the second vice-president in January, 1919, and four years later was appointed chief of the tariff bureau. Mr. Snow was appointed assistant to the freight traffic manager in June, 1927, and the following year was promoted to assistant freight traffic manager, which position he held at the time of his recent appointment as freight traffic manager, which became effective on December 20.

Charles K. Hall, who has been appointed assistant freight traffic manager of the Maine Central, with headquarters at Portland, Me., was born at Portland on June 1, 1883. He attended the public schools of that city and entered railroad service as clerk in the general freight agent's office on November 16, 1901. He was advanced to the position of traveling agent on July 1, 1914, and in March, 1920, he was again promoted to the position of assistant to the gen-

Charles K. Hall

eral freight agent. He was appointed commercial agent at Portland in April, 1923, and on July 6, 1928, was promoted to the position of general agent at Presque Isle, which position he held at the time of his recent appointment as assistant freight traffic manager, which became effective on December 20.

E. K. Fleming, who has been promoted to assistant freight traffic manager of the Chicago, Burlington & Quincy, with headquarters at Chicago, has been in the service of that railway for more than 39 years. He was born at Burlington, Iowa, in 1867 and first entered railway service on January 2,



E. K. Fleming

1887, in the auditing department of the Burlington at Chicago. Five years later he was transferred to the traffic department as soliciting freight agent at the same point, then in 1910 being advanced to general agent at Chicago. For 18 months during federal control of the railroads Mr. Fleming acted as supervisor of loss and damage claims in the Central Western region of the United States Railroad Administration. When the railroads were returned to private operation he resumed his position as general agent on the Burlington at Chicago. He was promoted to general freight agent, with headquarters at Chicago, in May, 1926, his further promotion to assistant freight traffic manager becoming effective on January 1. Mr. Fleming served as president of the Traffic Club of Chicago in 1923-1924.

Louis Motter, chief clerk to the freight traffic manager of the Union Pacific at Omaha, Neb., has been promoted to general freight and passenger agent of the St. Joseph & Grand Island, with headquarters at St. Joseph, Mo., succeeding **Samuel E. Stohr,** who retired on January 1. Mr. Motter was born at St. Joseph on August 3, 1888, and after graduating from the public schools in that city, attended the University of Missouri for one year. He entered railway service on January 1, 1909, as a clerk in the office of the general freight and passenger agent of the St. J. & G. I., later advancing to chief

Louis Motter

clerk. During the World War, from August, 1917, to August, 1919, Mr. Motter served overseas with the American Expeditionary Force and was commissioned a second lieutenant of Infantry. He then returned to the St. J. & G. I. as chief clerk to the general freight and passenger agent and on March 15, 1922, he was appointed chief clerk to the superintendent of refrigerator service of the Union Pacific at Omaha. On June 15, 1928, Mr. Motter became chief clerk to the freight traffic manager of the Union Pacific. Mr. Stohr has been in railway service for more than 51 years. He was born at Calicoon, N. Y., on September 14, 1857, and entered railway service in 1877 in the traffic department of the Chicago, Rock Island & Pacific. Later he was connected with the traffic departments of the Chicago & North Western, the West Shore (now part of the New York Central) and the Texas & Pacific and in 1889 he was appointed general eastern freight agent of the Chi-

cago Great Western at New York. In 1899 he was appointed assistant general freight agent of the Great Western at Chicago and five years later he was promoted to general freight agent at Chicago, where he remained until 1905 when he was appointed assistant general freight agent of the Chicago & Alton at the same point. From September, 1906, to May, 1907, he served as assistant general freight agent of the Wisconsin Central (now part of the Minneapolis, St. Paul & Sault Ste. Marie), with headquarters at Milwaukee, Wis. Mr. Stohr was appointed general freight and passenger agent of the St. J. & G. I. in May, 1907.

Mechanical

Howard C. Jones has been appointed supervisor of motor car operation of the Chesapeake & Ohio, with headquarters at Richmond, Va., effective January 1.

E. Bowie has been appointed district master mechanic of the Saskatchewan district of the Canadian Pacific, with headquarters at Moose Jaw, Sask.

J. H. Brunkhorst, assistant shop superintendent on the Missouri-Kansas-Texas at Sedalia, Mo., has been promoted to shop superintendent at that point succeeding **William Walker,** who retired from active service on January 1. **F. W. Stevens,** general car foreman at San Antonio, Tex., has been promoted to assistant shop superintendent at Sedalia, replacing Mr. Brunkhorst. **L. R. Center,** assistant car foreman at San Antonio, has been promoted to general car foreman at that point to succeed Mr. Stevens.

H. L. Harper, assistant master mechanic of the Lehigh & New England, with headquarters at Pen Argyl, Pa., has been appointed mechanical inspector, with the same headquarters. **Hugh Ronalds,** road foreman of engines, will succeed Mr. Harper as assistant master mechanic, with headquarters as before at Pen Argyl. **Drew Matlock** has been appointed general car foreman, with headquarters at Pen Argyl, succeeding **J. H. Ford,** deceased.

F. T. Huston, master mechanic on the Pennsylvania at Dennison, Ohio, has been transferred to the Panhandle and Wheeling divisions, with headquarters at Pittsburgh, Pa. **J. S. Richards,** master mechanic at Mingo Junction (Steubenville), Ohio, has been appointed assistant master mechanic of the Wheeling division, with the same headquarters and jurisdiction, which includes the Steubenville-Weirton district of the Panhandle.

Emmett J. Cole, superintendent of shops on the Union Pacific at Omaha, Neb., has been promoted to assistant to the general superintendent of motive power and machinery with jurisdiction over the entire System and headquarters at Omaha. **Otto Jabelmann,** superintendent of shops at Cheyenne, Wyo., has been transferred to Omaha to succeed Mr. Cole. **Reinhart H. Fasen,** general foreman in the locomotive department at Cheyenne, has been promoted to superintendent of shops at that point, succeeding Mr. Jabelmann.

Engineering, Maintenance of Way and Signaling

A. O. Wolff, division engineer of the Canadian Pacific, with headquarters at Brownville Junction, Me., has been appointed division engineer with headquarters at London, Ont., succeeding **J. A. Irvine,** transferred.

George M. Davidson, industrial engineer of the Chicago & North Western and president of the Superior Coal Company, a mining subsidiary of the railroad, with headquarters at Chicago, retired from active service on January 1.

L. W. Althof, division engineer on the Oregon Short Line, with headquarters at Pocatello, Idaho, has been promoted to engineer of maintenance of way, with headquarters at the same point, succeeding **F. D. Nauman,** deceased.

D. P. Beach, division engineer of the Indianapolis division of the Pennsylvania, has been appointed engineer of maintenance of way, Central Pennsylpania division, with headquarters at Williamsport, Pa., succeeding **Elmer Irving,** who has been assigned to special duty on the staff of the chief engineer of maintenance of way, Eastern region.

A. C. Bradley, division engineer of the Illinois division of the Chicago, Rock Island & Pacific at Rock Island, Ill., has been promoted to engineer of maintenance of way of the First district, with headquarters at Des Moines, Iowa, succeeding **W. H. Petersen,** recently promoted to chief engineer. **F. W. Thompson,** division engineer of the Iowa division at Des Moines, has been transferred to the Illinois division to succeed Mr. Bradley. **F. J. Nugent,** division engineer of the Nebraska-Colorado division at Fairbury, Neb., has been transferred to the Iowa division to succeed Mr. Thompson and Mr. Nugent has in turn been replaced on the Nebraska-Colorado division by **T. P. Warren,** division engineer of the Chicago Terminal division at Chicago. **Dave Ruhl** has been appointed acting division engineer of the Chicago Terminal succeeding Mr. Warren.

Purchases and Stores

David E. Reynolds has been appointed purchasing agent of the Bessemer & Lake Erie and the Union Railroad Company, with headquarters at Pittsburgh, Pa.,

N. H. Foster, purchasing agent of the Los Angeles & Salt Lake, with headquarters at Los Angeles, Cal., retired from active duty on December 31 after nearly 50 years of railway service.

George W. Leigh, assistant purchasing agent and general storekeeper of the Minneapolis, St. Paul & Sault Ste. Marie, the Duluth, South Shore & Atlantic and the Mineral Range, has been promoted to purchasing agent of those companies, with headquarters as before at Minneapolis, Minn., succeeding **Edward T. Stone,** deceased. **Jesse B. Noyes,** storekeeper on the Soo line at Minneapolis, has been promoted to general storekeeper of that railway, the D., S. S. & A. and the Mineral Range, with headquarters at Shoreham Shops, Minneapolis, succeeding Mr. Leigh.

Obituary

Thomas C. Dunn, who was treasurer of the Houston Belt & Terminal from 1910 to 1918, died at Houston, Tex., on January 1.

J. William Middendorf, Sr., one of the organizers of the Seaboard Airline, and at one time vice-president and a director of that road, died on December 31 in Baltimore, Md.

Ernest S. Benson, comptroller of the Chicago & Alton, with headquarters at Chicago, died at a hospital in Phoenix, Ariz., on December 31, from a complication of pneumonia and heart disease after an illness of three weeks.

Frank D. Nauman, engineer of maintenance of way of the Oregon Short Line, with headquarters at Pocatello, Ida, died at his home in that city on December 25.

Lucius H. Nutting, former general passenger agent of the eastern division of the Southern Pacific, died on December 29 in St. Vincent's Hospital, West New Brighton, S. I., New York City. Mr. Nutting had been with the Southern Pacific for approximately 40 years.

William C. Chisholm, general counsel of the Canadian National, with headquarters at Montreal, Que., died suddenly last week in that city. Mr. Chisholm was born on August 20, 1864, at Port Hope, Ont. He was educated at Toronto University and entered railway service on July 15, 1913, as general solicitor of the Grand Trunk System. He was made head of the legal department of that road in 1923 and when the Grand Trunk was absorbed by the Canadian National he was appointed assistant general counsel of the Canadian National System. In 1926 Mr. Chisholm was promoted to the position of general counsel for the system, which position he held until his death.

W. L. Tracy, formerly superintendent of the shops of the Lehigh Valley at

Sayre, Pa., died at his home in Shavertown, Pa., on December 23, at the age of 70. Mr. Tracy was born in Wyalusing, Pa., and entered railroad service as a machinist on the Lehigh Valley at Wilkes-Barre, Pa. He subsequently went to the Southern, where he was general foreman in the shops at Alexandria, Va., being promoted later to the position of master mechanic at Atlanta, Ga. In 1905, he became master mechanic of the Louisville & Nashville at South Louisville, Ky., where he organized the large shops, employing 3,200 men. In 1908, he went to the Missouri Pacific as assistant superintendent of motive power. On the opening of the Sayre shops, he returned to the Lehigh Valley. He retired from the superintendency of the shops in 1921 but for some time after was engaged in special service for the Lehigh Valley.

William L. Tarbet, land and tax commissioner of the Illinois Central, with headquarters at Chicago, died at his home in Flossmoor, Ill., on December 28, after a two weeks' illness. Mr. Tarbet had been in the service of the Illinois Central for 35 years and expected to retire upon reaching the age of 70 on January 21. He was born in Giles county, Tenn. in 1859 and after graduating from Blackburn University, Carlinville, Ill., in 1881, he entered railway service 11 years later as an assistant engineer on the Illinois Central. From August, 1897, to August, 1898, he was consulting engineer for the Illinois State Railroad and Warehouse Commission at Springfield, Ill. Mr. Tarbet was appointed tax commissioner of the Illinois Central on August 1, 1898, and since January 19, 1911, had also been land commissioner of that railroad and land and tax commissioner of the Yazoo & Mississippi Valley.

Charles H. Cory, formerly for 19 years superintendent of motive power of the Cincinnati, Hamilton & Dayton, died from uremic poisoning at his home at Lima, Ohio, on November 3, at the age of 88 years. Mr. Cory, at the time of his retirement in 1905 had been in railway service for 49 years. He was born in Morris County, N. J., and entered railway service in 1856 as an apprentice in the Cook Locomotive Works at Paterson, N. J. From 1862 to 1886 he served successively as foreman and master mechanic on the Illinois Central, master mechanic on the Cairo & Vincennes (now part of the Wabash), on the Iowa Central (now part of the Minneapolis & St. Louis), and on the Scioto Valley (now part of the Norfolk & Western), division superintendent of construction on the New York, Chicago & St. Louis and superintendent and master mechanic of the Boston, Hoosac Tunnel & Western (now part of the Boston & Maine). Mr. Cory served as superintendent of motive power of the C., H. & D. from 1886 until its consolidation with the Baltimore & Ohio in 1905. Since his retirement he had devoted his energies to business interests at Lima.

Lewis A. Robinson, comptroller of the Chicago & North Western, with headquarters at Chicago, who died at his home in Evanston, Ill., on December 28, had been in the service of that railroad and its subsidiary, the Chicago, St. Paul, Minneapolis & Omaha, for 55 years. He was born on July 5, 1856, at Glens Falls, N. Y., and first began railway work in 1873 on the North Western. During the following 13 years he advanced successively through the positions of paymaster's clerk, shop clerk, traveling auditor, general bookkeeper

Lewis A. Robinson

and paymaster and on January 1, 1886, he was appointed auditor of the Omaha, with headquarters at St. Paul, Minn. On January 1, 1897, he was promoted to comptroller. He served as comptroller of both the Omaha and the North Western, with headquarters at Chicago, from May 1, 1910, until May 11, 1918, when a separate comptroller was appointed for the Omaha and Mr. Robinson continued until his death as comptroller of the North Western. He was to have retired January 1.

Job Tuthill, assistant chief engineer of the Pere Marquette, with headquarters at Detroit, Mich., died of pneumonia at his home in that city on December 28. Mr. Tuthill was born at Blooming Grove, N. Y., on October 26, 1855. He was graduated from the University of Michigan in 1883 and entered railway service as a member of the engineering party that made the first survey for the Pike's Peak Railway in Colorado. In 1884 he became a draftsman in the bridge department of the Chicago, Milwaukee & St. Paul and in September of the same year he became an assistant engineer on the Detroit, Lansing & Northern (now part of the Pere Marquette). In August, 1889, he was further promoted to assistant chief engineer of that railroad and another which later also became a part of the Pere Marquette, the Chicago & West Michigan, and in September, 1890, he was further promoted to engineer of bridges and buildings of those roads. During 1900 Mr. Tuthill served as assistant engineer of the Grand Rapids district of the Pere Marquette and he was then advanced to engineer of bridges, with headquarters at Detroit, where he remained until October, 1909, when he was appointed assistant engineer on special work and, later, engineer of maintenance of way of the Cincinnati, Hamilton & Dayton, with headquarters at Cincinnati, Ohio. From July, 1911, to April, 1915, he acted as engineer of the Kansas City Terminal and he then became bridge valuation engineer for the Public Service Company of New Jersey on the appraisal of railway lines. For a short period during 1916 and 1917 he was building valuation engineer of the New York Central lines west of Buffalo, N. Y., and then resident engineer for the Niagara River Bridge Company. From May, 1917, to March, 1921, Mr. Tuthill was chief engineer of the Pere Marquette. Since that time he had served as assistant chief engineer.

Edward Thomas Stone, purchasing agent of the Minneapolis, St. Paul & Sault Ste. Marie and the Duluth, South Shore & Atlantic, who died at Minneapolis, Minn., on December 22, had been

Edward Thomas Stone

in the service of the former railroad for more than 41 years. He was born on January 21, 1861, at San Jose, Cal., and graduated from the University of Chicago in 1882. During the remainder of 1882 and in 1883 Mr. Stone was connected with the Chicago Tribune, then entering railway service as a traveling auditor for the Northwestern Traffic Association in 1884. Three years later he entered the service of the Soo Line as a clerk in the accounting department and in 1897 he was advanced to assistant auditor. From 1899 to April 15, 1903, Mr. Stone was freight claim agent, then being promoted to purchasing agent, with headquarters at Minneapolis. He had also been purchasing agent of the D., S. S. & A and its subsidiary, the Mineral Range, since 1919.